PARENTS' RESPONSES TO CHILDREN'S ILLNESSES: THE CASE OF CHILDHOOD DIARRHEA IN THE BAKOUM AREA, EASTERN PROVINCE, CAMEROON

By

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To my brother, the late Blasius Mbeh

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Abstract of Dissertation Presented to the Graduate School
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PARENTS' RESPONSES TO CHILDREN'S ILLNESSES: AN ANTHROPOLOGICAL STUDY OF CHILDHOOD DIARRHEA IN THE BAKOUM AREA, EASTERN PROVINCE, CAMEROON

By

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Chairman: H. Russell Bernard
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Diarrhea is a major killer of children in the world. Consequently, it is a challenge to health providers, researchers, and parents. This study examines how parents in the Bakoum area of Cameroon respond to this cause of children's morbidity and mortality.

A review of ethnographic studies of diarrhea shows that there are some similarities as well as differences in the way people handle children's diarrhea. Cultural groups around the world classify diarrhea into different types and prescribe treatment behaviors to each type. Universally, transition or developmental diarrhea is generally not treated. Parents "do nothing" at the onset of diarrhea. Some beliefs about the causes of diarrhea (like sour breast milk and sex) are common in many regions. Mothers are key players in the treatment of diarrhea universally. Some beliefs (like the concept of hot and cold illnesses) and practices are peculiar to regions or cultures.

Using participant observation, interviews of health providers and caretakers, and free listing, findings in the study of the Bakoum area confirm some of the findings reported in the anthropological literature. Parents recognize diarrhea and associate various symptoms and causes to it. It is shown that parents in the Bakoum area know and use multiple treatments for children's diarrhea, including health centers, traditional healers, traditional home remedies, and pharmaceuticals.

A process model and the determinants model are used to show that many factors (including characteristics of the illness, patient, caretaker, household, community, nation, and international relations) influence treatment behavior. Health-seeking behavior is a dynamic process, and changes as the illness unfolds and interpretations of the illness by caretakers change. Parents use many strategies to treat diarrhea, including delays, simultaneous treatments, and sequential treatment.

CHAPTER 1
INTRODUCTION

This study is a continuation of my work in medical anthropological studies beginning in 1986 and since 1994, on the social, cultural, and behavioral factors related to parents' treatment of infantile diarrhea. At that time, as part of my training in anthropology at the University of Yaounde, I carried out a study on the health care system of the Kom people in the northwest province of Cameroon. Kom is a centralized kingdom with the chief (or Fon) at the apex of the administrative structure. I found that the Kom medical system could be divided into two major forms: curative and apotropaic or preventative medicines. Curative medicine attempts to cure individuals suffering from illness while apotropaic medicine is meant to ward off evil agents that could be the source of misfortune for the society as a whole (Mbeh 1987). In other words, curative medicine addresses the health problems of individuals while apotropaic medicine focuses on the wellbeing of the whole society. Attempts to achieve these goals include periodic ceremonies and rituals, carried out at all administrative levels of the society. Efforts to control disease and promote health are organized to correspond to the political and social structure of the society. Health rituals that concern the whole kingdom take place at the palace; those that apply to the village are carried out at the level of the village; and those that concern families are performed at the household level. These activities are both preventive and curative. I found that health efforts for the general wellbeing of the society are the responsibility of institutions while each household strives to provide good health for its members. I was struck by the amount of health-seeking activities that go on at the household level and became interested in understanding health care behavior at the household level.

In 1994, I collaborated in a study with Drs. Paul Nkwi and Flavien Ndonko of the University of Yaounde 1 on the home management of children's diarrhea in the south and northwest provinces of Cameroon. The effort was sponsored by the Applied Diarrheal Disease Research project (ADDR) at Harvard University under support from USAID. In that study, we examined how parents took care of their children who had diarrhea at the household level. We collected data on folk beliefs about causes, symptoms, and treatments of children's diarrhea. We built, but did not formally test, an ethnographic decision tree model of how parents make treatment decisions in the treatment of children's diarrhea.

In the Cameroon study, we compared illness behavior in two cultures—Meba and Wombong. We found that

1. Each of the cultures had a taxonomy of diarrhea.
2. Some behavioral aspects were common to both cultures—for example, delays in starting treatment after the onset of diarrhea.
3. There were some overlapping treatment behaviors—for example, using plantains to treat diarrhea.

As a follow up to the study of diarrhea in Cameroon, and in preparation for this study, I reviewed studies of diarrhea across the world. My goal was to find out whether beliefs and behavior or responses to diarrhea that were found in the initial Cameroon study are also common across very different cultures. I focused on beliefs about the causes of and treatments for diarrhea.

I found that all cultures have beliefs that are sometimes influential in the treatment behavior. Most cultures have some taxonomy and classification of diarrheal illnesses, for example, developmental diarrhea. Most have beliefs about the causes of diarrhea, and some of those beliefs, like those about developmental diarrhea, are common across cultures. Many cultures recognize a variety of symptoms, and many of those symptoms are similar to those identified by biomedicine. Some symptoms, like bloody stools, trigger immediate action in most cultures.

Treatment behavior is influenced by many factors--characteristics of the illness, the patient, the caretaker, the household, the community, and the region. Some treatment behavior is universal--for example, "do nothing," especially for cases of developmental diarrhea.

I found that many factors are common across the world, while others are peculiar to local regions. The literature shows that much ground has been covered in the study of diarrhea. Many studies have examined indigenous explanatory models of diarrhea and cognitive models. Others have examined the factors that influence the illness behavior of parents and caretakers when they are faced with children's diarrhea. Still others focus on illness behavior as a process that unfolds in response to the unfolding illness.

On the other hand, the literature review also identified areas that have received less attention. A lot of attention has been paid to diarrhea at the household level, but few studies have examined the factors that influence illness response behavior from a multilevel perspective. Studies that have used both the determinants and process approaches together examine illness and illness behavior as processes that unfold are equally rare.

Researchers commonly use two approaches in their analysis of health behavior:

1. Determinants Approach: The majority of social research on illness is based on the determinants approach. This approach identifies the factors that influence the health seeking behavior of caretakers. These factors include characteristics of illness, patient, caretaker, household, community, and region (Ryan 1995, Declerque et al. 1992; Mock et al. 1993; Riley et al. 1990; Omorodion 1993; Mechanic 1986).

2. Process Models: Researchers who use process models consider that an illness evolves and the patient's and or caretaker's treatment behavior changes with the changing illness. As an illness evolves, patients and caretakers observe and interpret its evolution and adopt treatment behavior that corresponds to their evaluation of the illness. They evaluate each treatment to see if it is taking effect. Researchers who use this approach are interested in the factors that caretakers take into consideration in making treatment decisions. They try to understand who takes the important decisions and what factors influence such decisions. They take note of the treatment options available to caretakers and patients and the criteria they use to select among these treatment options. Researchers who have used this approach include Garro 1986; Young 1980; Young and Garo 1982, Young 1981; Mathews and Hill 1990; Ryan and Martinez 1996, Weller et al. 1997; Hurwicz 1995).

Each approach has its strengths and weaknesses when used alone. For example, determinant models are useful in telling us about etic elements but are less efficient in bringing out the thinking of the local population--the emic component of behavioral response. Process models, on the other hand, are rich in emic information but are less helpful in integrating the effect of etic information. Process models give us a diachronic perspective by treating illness and illness behavior as unfolding processes. To benefit from both, I use the two approaches as complementary components in my study. I show that diarrhea and health-seeking behavior are influenced by factors at the micro and macro levels.

I have two main goals in this dissertation. The research was part of an applications project to understand, on the one hand, the conditions in rural Cameroon that are responsible for infant and child diarrhea and, on the other hand, to identify the ways that parents handle the illness at household level.

I expect my findings to be useful to local policy makers, including the village chiefs who are also responsible for improving local health conditions. I also expect my findings to be useful to my colleagues in anthropology and in public health research. As research accumulates on cultural and behavioral aspects in the epidemiology of any illness, we become better able to see patterns, to theorize about the causes of those patterns and to test our findings against those already in the literature.

Applications research is often done quickly because funds are scarce and the human problems they address are acute. No one doubts the usefulness of long-term ethnography, but scholars and funders alike recognize the need to find valid and reliable methods for studying patterns of culture quickly. Handwerker et al. (1997) distinguished between data on personal attributes and data on culture. It is one thing, they point out, to ask a woman what she does as a mother and to ask the same woman to describe what it means to be a good mother in her society.

To estimate a parameter, like the proportion of women who breast feed, one needs a representative sample of respondents. To estimate the central themes of a culture, and the variation around those themes, one needs experts, that is, key informants rather than respondents (Levy and Hollan 1998).

Traditionally, data to estimate parameters are collected by survey methods which are relatively quick, easy, and less expensive to produce. On the other hand, data about cultural patterns are traditionally collected by participant observation and ethnographic interviews. These data, typically take a very long time to produce.

The second purpose of my dissertation is to show how systematic data collection methods like free listing and the methods to analyze them can be applied to the study of cultural patterns in how people respond to childhood diarrhea. In Chapter 3, I use an adaptation of the free listing method to study how people across the world react to episodes of childhood diarrhea. In Chapter 6 , I also use lists and sorting methods, along with correspondence analysis to compare how people in three villages in Cameroon think about and react to episodes of childhood illnesses and diarrhea. These methods are used in combination with participant observation. (See Chapter 4 for a description of methods used in the study.)

Diarrhea: A Global Public Health Problem

Children's diarrhea is a daily problem for parents throughout the Third World where it kills four to five million children per year (Kumar et al. 1981; Escobar et al. 1983; de Zoysa et al. 1984; Green 1985; Pickering 1985; Gold 1988; Olango and Aboud 1990; Ahmed et al. 1993; Nichter 1993). In 1986 children in developing countries experienced a median of 3.8 episodes of diarrhea—ranging from 0.8 in Surinam to 10.7 in Egypt. Cameroon, Bhutan, Ivory Coast, Nepal, and Sudan were near the median (Pizarro 1988).

Not surprisingly, management of diarrheal diseases has been studied around the world to understand how people respond to the disease and to find appropriate ways to introduce oral rehydration therapy (ORT). Patel et al. (1988) studied the reasoning of schooled and unschooled Maasai mothers in Kenya about the cause and treatment of childhood diarrhea. They found that unschooled mothers considered diarrhea to be caused by moral and social factors while schooled mothers explained the cause of diarrhea "with a series of quasi-biomedical facts about the disease with little or no connection between facts" (Patel et al. 1988:1277). Dargent-Molina et al. (1994) found that maternal education protects against infantile diarrhea in economically and socially advantaged communities but has no effect in the disadvantaged communities.

Most deaths from diarrheal disease are preventable. Children die of dehydration from the illness, so providing children with liquids and low levels of salt (preferably in the form of oral rehydration solutions or with cereal-based ORT) has been shown to reduce deaths significantly.

Global attempts to eradicate diarrhea (especially in the Third World) are carried out by local governments, the WHO, UNICEF, and other NGOs. With regard to treatment, WHO promotes the use of oral rehydration therapy, the method currently used in most developing countries. Treatment by ORT is aimed at stopping or reducing dehydration by replacing lost electrolytes and fluids.

Clinically, diarrhea is both a sign and a symptom. "As a symptom, diarrhea has been described as an increase in stool frequency, an increase in stool volume, and or a decrease in stool consistency. As a sign, diarrhea is characterized by an increase in stool water excretion to greater than 150 to 200ml every 24 hours" (Binder 1990:6a-2s).

As either a sign or a symptom, diarrhea can be classified according to several parameters: duration (acute versus chronic), affected organ (large intestine, small intestine or both), clinical description, (frequency, volume, consistency, presence of blood), origin, and primary pathophysiology (Binder 1990).

As the above definition shows, biomedical specialists define diarrhea in precise terms and use various criteria to assess the patient and the disorder. These include measurement of stool consistency, hydration status, and serum electrolyte levels. Etiology is ascribed to infectious enteric pathogens. However, lay concepts, practices, and responses to the disease, as we shall see later, do not always correspond to biomedical concepts and traditions.

The effect of childhood diarrhea on households and on the national economy across the developing world is considerable. Diarrhea inhibits activity and is expensive to treat. Working parents whose children have diarrhea must stay at home to care for them. In many cases working parents whose children have diarrhea have a hard choice between work and child care. Sullivan et al. cited in (Johnson and Ericsson [1990]) report that in the developed world, the average head of household or spouse lost 4.7 workdays per year due to diarrhea disease in the child attending a day care center. Sullivan et al. also report rates of 3.4 cases per person per year.

Diarrhea in Cameroon

In 1979, the incidence of diarrhea in Cameroon was 190 per thousand among children less than 1 year old, 22 per thousand among adults, and 62 per thousand for the whole population (Ministry of Public Health, 1984). Seventy-five percent of deaths due to diarrhea occurred among children 0-4 years old. Diarrhea has a major impact on the health and growth of children. Its high incidence leads to great pressures on health facilities and on the national budget.

The population of Cameroon is estimated at 12 million. In 1979, the mortality rate among children under 5 years old was 288 per thousand (Ministry of Public Health, 1984). Infant and child mortality vary according to socioeconomic and geographic factors, but by 1990, the infant mortality rate ranged between 85 and 120 per thousand (Ngatchou et al. 1993; Defo 1996). Diarrhea continues to be an important cause of morbidity and mortality, especially among children under 5 years of age. About 50% of deaths due to diarrhea occur among children under 5 years old (Essomba et al. 1993; Nkwi et al. 1994).

Cameroon started its fight against diarrhea in 1987 through the National Program for the Control of Diarrheal Diseases, (NPDD). Between 1987 and 1992, the program had reduced morbidity linked to diarrhea by 20% and also decreased mortality by 5% (Nkwi et al. 1994). The ministry of public health trained more medical personnel to handle the disease in health units. Other accomplishments of the program include the production of materials for training health personnel and the establishment of diarrhea training units (DTUs) in Yaounde, Douala, and Bamenda. The program was also responsible for the implementation of a communications and education campaign strategy through radio and television broadcasts and the distribution of flyers and printed materials explaining the correct preparation of oral rehydration solutions (ORS) and the correct treatment of children with diarrhea at home. ORS is distributed to many public health centers throughout the country by the Ministry of Public Health.

Between 1990 and 1992 the Ministry of Public Health planned to continue more communication and sensitization activities, to equip health centers, train more health workers, and enforce ORS distribution and tracking. The Ministry of Health defined health districts, alleviated both the structural and organizational difficulties posed by their formation, and planned on having 123 health districts which encompass 247 arrondissments or subdivisions (Essomba et al. 1993). It is difficult to tell, however, if small improvements in the infant mortality rate are due to the efforts of the program or to general development efforts--the building of roads, the establishment of clinics, the extension of education to girls, and so on.

A recent demographic and health survey of Cameroon (Fotso et al. 1999) asked mothers if their children had diarrhea within the two weeks preceding the survey and found that 19% of the children had at least one episode of diarrhea within two weeks prior to the interviews and 3% of these episodes were bloody. The prevalence of diarrhea was significant among children who are 6 to 23 months old. Within this group, 21% of children between 6 and 11 months old and 26% of children between 12 to 23 months old had at least one episode of diarrhea during the two weeks before the interview. The report notes that these ages with significant prevalence coincide with the ages at which children are weaned. They are also the ages when children start exploring their immediate surroundings and could easily come into contact with pathogens in the environment (Fotso et al. 1999).

The report shows differences in the prevalence of diarrhea by cities. Prevalence is higher in the rural areas (20%) and in "Other Towns" (19%) than in the cities of Yaounde and Douala (14%). By region, the Adamaoua, north and extreme north provinces have the highest prevalence (25%), followed by the center, south and eastern provinces (19%). The report notes that poor sanitary conditions and problems related to potable water supply are responsible for the high prevalence of diarrhea. Mothers' low educational levels are also responsible for the prevalence of diarrhea. Twenty-six percent of children whose mothers had no level of education had diarrhea in the two weeks preceding the interview as opposed to 16% of children whose mothers had some level of schooling. It is also noted that these differences are explained not only by the education variable but also by socioeconomic and environmental conditions (Fotso et al. 1999).

Concerning ORS, 56% of mothers who had children 3 years before the interview, declared that they knew about ORS sachets, especially in the urban areas (66%) and among women who had a secondary school level of education (73%). On the other hand, in the rural areas and among women with no educational level, the knowledge of ORS sachets was lower, 52% and 38%, respectively (Fotso et al. 1999).

On nutrition of children during diarrhea episodes, 71% of mothers said that the amount of liquids should be increased to make up for water lost during diarrhea, while 17% thought that the amount of liquids should be reduced, and 9% thought that the amount of liquids did not need to be changed during diarrhea. Concerning feeding, 30% of women thought that feeding should be reduced during diarrhea; 35% thought it should be increased; and 28% thought that the amount of food need not be modified for children having diarrhea. The study notes that in general, urban women, especially those of Yaounde and Douala, and highly schooled women are more knowledgeable about the appropriate feeding behavior to adopt during episodes of children's diarrhea (Fotso et al. 1999).

Women were also surveyed on treatment behavior. Twenty-eight percent of women whose children had diarrhea within the two weeks prior to the study sought advice or treatment or went to a health facility. Children 6 to 23 months old were treated mostly at a health facility. .However, urban children (36%) and those of educated or schooled mothers (32%) were more frequently taken for consultation at a health facility than children in the rural areas (26%) and children of mothers with no level of schooling (23%). Generally, about 64% of children with diarrhea received liquids during diarrhea episodes. Thirty-four percent of children were given oral rehydration solution or a home solution. Again, urban children (71%) and children (76%) whose mothers have had secondary school-level education or more received more liquids. On the other hand, 30% of children in the rural areas and 17% of children whose mothers had no level of schooling received oral rehydration therapy during diarrhea. Other common forms of diarrhea treatment included pills and syrups (43%). This kind of treatment was found to be common among children 12 to 35 months of age (48%) than among other age groups and among children living in urban areas (50%) than among those in rural areas (41%). Injections (2%) and traditional medicines (18%) were also found to be used by mothers to treat children with diarrhea (Fotso et al. 1999).

The study also reports that 12% of children with diarrhea received no treatment at all and notes that the proportion of children who received no treatment is highest among very young age groups (36% of less than 6 month olds), children of very young mothers (21% of children of mothers less than 20 years old), and among children living in the Adamoua, north, and extreme north provinces, (20%) and when the mother has no level of schooling (20%) (Fotso et al. 1999).

Applied Importance of the Study

Diarrhea is a common killer disease in the developing world. Parents are challenged by its devastating impact on the health of children. In their efforts to eliminate the disease, policy makers and health implementers have to design health policy. However, they only have limited empirical data which is further limited by the fact that it is based on biomedical orientation and void of locally observed health behavior. This study helps to fill that gap by focusing on how parents handle children's diarrhea and by showing some of the structural and infrastructural conditions that favor the prevalence of diarrhea in the Bakoum area of rural Cameroon. It also examines caretakers' perceptions, beliefs, and recognition of diarrhea symptoms. Data from this study would be of use to policy makers in designing policy that targets specific, concrete health problems of the rural world by taking into account empirical data about the daily problems of parents and children, and the structural and infrastructural problems in the locality that hinder the household reproduction of health.

Diarrhea is one of the illnesses whose prevalence relates to socioeconomic and environmental conditions. It is well known that in industrialized countries clean water, refuse and sewage disposal, and a generally high quality of life are associated with lower levels of morbidity and mortality from diarrheal diseases. In the developing world where a similar quality of life is not yet attained, the incidence of diarrhea is higher and so are the morbidity and mortality rates. To ensure a long lasting solution, it is important that the promotion of effective ORT be accompanied, if not preceded by, measures to improve the living standards and quality of life in households and environment.

In practical terms, the results of this study may be helpful to planners in understanding the emic insights of local peoples' health decision processes and behavior. With such knowledge, their formulation of policy may be improved and targeted to specific population needs.

Dissertation Outline

Chapter 2 presents a review of the main theoretical models that have been used to study illness behavior. In Chapter 3 I present a review of the literature on what we know about illness behavior. Chapter 5 presents the research site, the research design, and methods used to collect the data. Chapter 5 is an analysis of the political economy of health showing that factors at the macro level influence health care and health behavior at the micro level. Chapters 6 and 7 present and discuss the data from the Bakoum area. Chapter 6 presents and analyzes the local perceptions of diarrhea in relation to other illnesses while chapter seven presents illness behavior as a process using behavior data from closely monitored actual cases of children's diarrhea.

CHAPTER 2
LAY PEOPLE'S HEALTH CARE BEHAVIOR: A THEORETICAL FRAMEWORK

Introduction

Anthropologists interested in understanding health behavior, study decisions that people take during illness episodes and the factors that influence such behavior. Such studies have sought to answer questions such as the following: Who uses which health care option? What determines a health seeker's choice of one health care option over another or others? What is the process of decision making that leads to that choice? In this chapter, I show that two main models (determinants and process) have been used to study children's illnesses and diarrhea in particular. I discuss the strengths and weaknesses of each approach and argue that it is more beneficial when the two approaches are used to complement each other.

Health Behavior

Health behavior comprises all activities carried out during an illness aimed at stopping or understanding or getting some relief from the illness. Researchers have identified various kinds of behavior including behavior within the household and outside the household. Most studies however, have focused on behavior outside the household, except for diarrhea where an attempt has been made to monitor mothers' behavior patterns within the household.

Behavioral Process

Health-seeking behavior can be observed through synchronic and diachronic perspectives. Most studies have looked at health behavior from a synchronic perspective. Diachronic studies are few, but researchers of such studies consider the aspect of time as an important factor in the treatment of an illness. Such studies, like Janzen's (Janzen 1978) on health-seeking behavior try to find out how behavior changes with time as the illness unfolds.

Treatment Options

When an illness goes on for a long time or when caretakers consider the illness to be severe, they seek treatment outside the household (Nyamongo 1998). Treatment alternatives available to health seekers are many. Those identified by researchers include "do nothing," indigenous medicine, health clinic, health center, home care management, self-treatment, and pharmaceuticals. Treatment behavior at home involves home remedies and parent's knowledge and past experience. The household is the key area where illness activities are dense. Most illnesses are discovered at home, and decisions on whether to treat or not, as well as where and when to treat, are also taken at home. A large number of illnesses in the world are treated at home (Kleinman 1980).

Home Remedies

Households use a variety of treatments at home. I refer to all of them as home remedies. They include indigenous medicines, pharmaceuticals from local shops, pharmacies, and individual vendors. Pharmaceuticals at home may also be leftovers from supplies that were obtained from a health facility like a hospital or health center for earlier illness episodes. Self-treatment is a common practice. Various kinds of pharmaceuticals are used, from pain pills to antibiotics. In pluralistic medical systems, it is common to find that most adults know and use various medicines from different medical traditions coexisting in the community.

Nonprofessional Healing

Outside help is sometimes offered by nonprofessional lay people—actors in social networks, indigenous healers, and modern health facilities. There are many nonprofessionals who are knowledgeable in home remedies and who may know about illnesses perhaps through past experience. Such people are sometimes handy in giving medical advice and treatment. Outside help is also common from pharmaceutical vendors who distribute pharmaceuticals, give medical counseling, and administer treatment. Some of the practices of informal or unlicensed pharmaceutical vendors (like the sale of prescription drugs) are not legal, but in many villages vendors are the only source of medicines for many people. Seeking professional help is dependent on many factors—availability of professionals and professional health facilities. It also depends on judgments of the severity of the illness, availability of financial resources, and the length of the illness.

Sequential Patterns in the Use of Medical Options

A diachronic approach in the study of illness behavior considers health care behavioral activities as sequential or following a sequence (Ryan 1998). In sequential patterns, caretakers use one medical option, and if they consider it not helpful, they try another. "Medicine is trial or testing" *or "ngang nin ngo' imom.*" goes a Kom saying in the northwest province of Cameroon, from where I come.

Sequential patterns of illness management behavior have been reported in many parts of the world—Africa (Lasker 1981; Good 1987; Mwabu 1986), Latin America, (Press 1969; Declerque et al. 1992; Oths 1994; Fabrega and Manning, 1979), and Asia (Kleinman 1980; Colson 1971)

Simultaneous Use of Medical Options

People also take a simultaneous approach in their health care behavior, that is, they use more than one treatment option (for example, applying traditional medicine while the patient is receiving treatment at a hospital) for the same illness. In pluralistic medical contexts this is common. However, many professional health workers do not approve of such behavior and so most patients and caretakers do it in hiding. Ngubane (1981) points out that in South Africa biomedical doctors and nurse-interpreters tend "to reprimand the patient at some length for wasting time with African healers instead of coming straight to the Western practitioner and institutions." Similar attitudes are also reported in Cameroon (Mbeh 1988). Those attitudes create distance between biomedical practitioners and patients and cause patient discomfort with the result that most patients will not tell their full case histories to medical personnel (Ngubane 1981). Feierman (1981) describes the situation of diagnostic and therapeutic choices in Africa. In a typical African village, two major characteristics are evident: diverse ideas about health and illness and a set of health-seeking practices as well as an absence of an effective monopoly of health decisions by the state or body of local healers. The only people who manage these health ideas, practices, and situations are members of the fluid therapy management group.

Models for Understanding Health-Seeking Behavior

Over time, many models have been used to explain people's health-seeking behavior. These include the health belief model (Rosenstock 1966; Becker 1974, 1976; Becker and Maiman 1983), the adversary model (Foster 1977), explanatory models (B. Good 1977; B Good and M good 1981; Janzen 1978; Kleinman 1980;), the sociobehavioral model (e.g., Andersen 1968, 1995; Aday and Andersen 1974; Andersen and Newman 1973; Kronenfeld 1978, 1980), determinants models (e.g., Mechanic 1969; Kroeger 1983; Bentley 1992; Pescosolido and Kronenfeld 1995), process models (e.g, Freidson 1959; Polgar 1963; Young 1981; Mechanic 1989), and ethnographic decision-tree models (e.g, Young 1980; Gladwin 1989; Mathews and Hill 1990; Weller et al. 1997).

"Models are narrative, graphic or numerical analogies depicting relationships between variables" (Stanton et al. 1992). Models are based on different theoretical perspectives and emphasize certain factors over others. However, there is much overlap, and attempts have been made to merge the different approaches (Cummings et al. 1980). A review of the literature indicates that the numerous models can be grouped into two major approaches: process and determinant approaches. In my view, and following Ryan (1998), these two approaches are complementary.

After an extensive review of health care behavior studies and the approaches used in studying them (Ryan 1995) provides a "generalized determinants framework" which arranges the determinant categories into a series of concentric circles with illness behavior at the center and the classes of determinants of health behavior surrounding it. The framework places determinants along two dimensions. The first dimension is a continuum of determinant *classes* represented by concentric circles. Each class corresponds to different units of analysis that comprise characteristics of illness episodes, patients, caregivers, households, communities, and larger regional units (Ryan 1995).

The Determinant Models

Researchers who apply the determinants approach set off from a premise that certain factors (like education, distance to health facility, wealth, and age) determine health-seeking behavior. Determinant studies have been used to study seasonal variations in household costs of illness (Sauerborn et al. 1996), the impact of road construction on hospital utilization (Airey, 1992), and various studies of diarrhea (Kenya et al. 1990; Ahmed et al. 1993). Ryan's generalized determinants model groups determinants into five categories—characteristics of illness, characteristics of patient, characteristics of caretaker, characteristics of household, and characteristics of community. Below, I discuss each of them. I also add characteristics at the national and international levels. At the same time I use the process model as a complement to the generalized determinants model to examine health behavior as an unfolding process.

Characteristics of the Illness

These include the signs, symptoms and diagnostic labels or terms used by the caretakers. Characteristics of illness also comprise lay people's ideas of etiology, severity, and interruption of daily routines or activities. It has been noted that the recognition of signs and symptoms are important for diagnosis and classification of an illness which, in turn, is important for determining treatment behavior (Mechanic 1969; Colson 1971). Etiology is also an important element in determining treatment of illnesses (Tsey 1997; Hsu 1955; Goldsen 1957; Suchman 1965). Many studies of diarrhea have shown that when diarrhea is considered to be caused by a certain kind of food, treatment would involve a withdrawal of such food from the child's menu or diet. Other factors that have been found to be influential in the treatment of illnesses are ideas about illness severity. In most cases, when an illness is judged to be very severe, the patient is taken to the hospital. Judgments of severity can influence both where treatment will be sought and how soon. Most illnesses that are judged severe are treated outside the home, unless the caretaker knows how to treat the illness. In a study of traditional medicine use in Ghana, Tsey Komla realized that traditional healers did not mention respiratory infections and diarrhea in the lists of illnesses that they treated, despite the common occurrence of those illnesses in the locality. His curiosity aroused, he decided to find out why. In the process, he discovered.

> An interesting aspect of the community's perception of traditional medicine *vis-a-vis* Western type health care. Two respondents felt that mothers generally preferred to take their children to the clinic for diarrhoea while another said "the cough mixture from the clinic works faster (1997:1069).

Characteristics of the Patient

Characteristics of the patient include age, sex, and birth order, as well as preferences and opinions such as judgments of probability of survival. Studies have noted that children generally or routinely receive differential treatment modalities from those offered to adults.

Some studies show that age (Frankenberg and Leeson 1976; Ryan and Mbeh 1996) and sex (Chen et al. 1981; Escobar et al. 1983; Ravindran 1986; Hossain and Glass 1988) of children influence the health care that patients, particularly children, are given. In a cross-cultural study of pharmaceutical use in Cameroon and Mexico, Ryan and Mbeh (1996) found that a child's age was important to mothers' considerations of whether to administer any drugs. The mechanisms by which these determinants affect treatment behaviors are not well established, however.

There has been speculation, too, that birth order affects child health care. Children born first may be given better and prompter care. It is not clear whether this is due to a higher value being placed on first-born children or to a lack of experience and self-confidence by caregivers. It may also be that by the time a second or third child comes along, parents have invested time, money, energy, and emotion in the survival of a first born. In countries where children are often gravely ill, these investments, when they work, produce greater care for older children than for those who follow. On the other hand, it is observed that in societies where healthy nutrition is marginal, and babies depend mostly on breast milk, older babies often suffer from less breastfeeding and care because their mother's attention is taken up by the new baby. Such older children may suffer from malnutrition and ill health. Such situations are common in cases of close birth spacing. Cases of this situation were observed in the Bakoum area.

In Cameroon and many parts of Africa, twins are often the recipients of special attention manifested in various rituals, feeding patterns, and behaviors.

Characteristics of the Caretaker or Caregiver

The characteristics of a caregiver or caretaker can also determine the kind of treatment a patient receives. Caretaker characteristics include social and demographic variables like age, education, occupation, number of children, sex, and social networks. It also includes past experience, beliefs about and knowledge of illnesses, and treatment options available. Studies of illness behavior have looked at how social demographic factors influence health behavior (see McKinlay [1972a] and Kroeger [1983] for reviews). Some studies have shown that social demographic factors such as age, gender, formal education, and marital status affect the utilization patterns of health alternatives in adults.

Characteristics of the Household

Household characteristics include size, composition, age/gender distributions, wealth, social status, and acculturation. Big households imply a bigger social network base. Given that many households tend to pull their resources together and to discuss and exchange knowledge on such problems as illnesses, health behavior would tend to differ depending on the size and composition of the household. We would expect that people in larger households should know more illnesses and their characteristics as well as treatments and treatment options than would people in smaller households.

Behavior in the household also tends to be influenced by the level of education and wealth of its members. Janzen (1978) has shown that chronic illnesses tend to be managed by an illness management group which may contract and expand during the illness. Some of the members may participate more than others. People's faith and beliefs in health options also affect treatment behavior patterns.

Characteristics of the Community

This refers to the infrastructure in the community, including health facilities, schools, roads, climate, vegetation, population density, water supply, power supply, and other factors that may affect the health behavior of the population. The characteristics of the treatment facilities—like distance, cost, hours services are provided, patient and health provider communication, and general quality of care—also influence health behavior.

Health care behavior varies as the number of treatment alternatives increases. Thus, when there are many alternatives, lay people use more precise judgments to select among alternatives (Lasker 1981) and wait less for results of such treatments before trying something else (Nichter 1980).

The ordering of the classes in Ryan's generalized model is based on the observation that

> characteristics of higher levels are useful for explaining variance at lower levels. The effect that each class of determinants may have on HCM [home care management] practices is prioritized from low (inside) to high (outside) levels. Although the framework allows that each class of determinant may have a direct effect on HCM behaviors, it implies that higher classes of determinants are more likely to indirectly affect behavior. For example, we expect to find that compound wealth influences the education level of caretakers, which in turn affects their knowledge of illnesses and preferences for certain kinds of treatment modalities, ultimately affecting their use of hospitals or clinics. (Ryan 1995:13-14)

Characteristics of the Nation's Public Health Organization

Many elements like communication networks, transportation system, functioning health facilities, medicines, committed health personnel, a prosperous national economy, and a good educational system work together for a modern health care system to provide adequate health care for its users. The way a government manages and coordinates these infrastructure and personnel for the benefit of the population affects national health issues. Most governments directly control public health administration, health expenditures, training of health personnel, health policy, and the national economy.

In many countries of Africa, the distribution of health facilities is sometimes determined by influential elite in strategic positions in the administrative hierarchy who are committed to have certain infrastructure in their area of origin or interest. These people and groups of elites in towns operate as lobbying groups or agents on behalf of their ethnic groups of origin. As part of the election campaign in Cameroon in 1997, the president's wife paid a visit by road to the eastern province, her province of origin. The road was not tarred and a lot of hope and speculation arose that she would influence her husband to have the road tarred since she had seen the state of the road first hand. The history of the arrival or the installation of electrical power and the health center in Goumbegeron is related or connected to the former local mayor who was powerful and influential in the political circles of Yaounde, the capital, where decisions are taken.

National health policy determines the way health delivery is performed, the kinds of drugs that are used, budgeting, where to build health infrastructure, the nature of training, and where professionals should work. All these affect the availability of medicines, personnel, health infrastructure, and supplies which in turn affect health behavior and people's health at the grassroots level.

International Factors

Activities and policies at international level impact on health provision in developing countries. The international community affects the health status of developing countries through policy recommendations, loans, structural adjustment policies, and through bilateral and multilateral agreements. These activities are carried out through international organizations like WHO and UNICEF which use local governments to influence health policy and outcomes. The World Bank and the IMF affect the health of local populations indirectly through economic and fiscal directives and through policy recommendations to local governments. When such directives are implemented, they affect local economies and, ultimately, the availability of money for health care at national and household levels. I discuss this aspect later in Chapter 5. Bilateral and multilateral agreements also affect people's health in developing countries when those agreements concern economic development and health programs.

We have learned a lot through determinant approaches. However, the approach is usually synchronic and does not account for mechanisms by which the determinants affect individual actions. Furthermore, though determinant models tell us the factors that affect health behavior, they do not show how this happens. For example, we know that wealth or age influence behavior but not how. Finally, unlikely process models which can predict more than 80% (Gladwin 1989), determinant models typically predict about 20%-30% of people's illness behavior (Nyamongo 1998).

Process Models

Process models examine illness behavior as a changing series of decisions and activities that correspond to the changes of the illness. Determinants approaches are good at telling us what affects health behavior from a synchronic perspective and force us to examine etic variables which, as we have seen, are quite complex. Determinant models, however, are typically weak in calculating the effect of emic variables on health behavior. Process models, by contrast, explain how caretakers make decisions about health care. These models attempt to understand caretakers' treatment behavior as a process which unfolds over time in response to the evolution of an illness.

I use the process model as a complement of the determinants model to show how illness behavior unfolds with time and in response to caretakers' considerations about the illness as it evolves. I also show how forces at the macro level affect health behavior at the micro level. The advantages of process models are many. Process models give us both diachronic and emic perspectives of a problem. They also allow us to assess how illness behavior may change with time as caregivers are forced by the illness changes to evaluate and reevaluate their diagnosis, treatments, and classifications of the illness. In process (pathway) models, the investigator considers decision making as a process and seeks to understand the cognitive steps that a health seeker goes through in making decisions.

Often, the characteristics of an illness and the conditions in which it occurred change. In such circumstances, caretakers modify their behavior accordingly, and this adds to their knowledge or experience about the illness and, to some extent, to the cumulative experience of the community as well. The acquired experience is usually used in assessing later episodes of illnesses.

Another advantage of the decision-making process approach is that it casts the caretakers' behavior in a problem-solving framework and tries to understand or explain how caretakers solve problems.

The process approach incorporates both individual and group-level know-how by applying the information that caretakers use in assessing and diagnosing the illness and in selecting treatment and evaluating the outcome of the treatment. People (social network members) around the caretaker also influence the decisions taken, but the ultimate actions are taken by individuals, not groups.

The approach incorporates infrastructural variables (material conditions), structural variables (social networks), and superstructural variables (beliefs, cognitive). Process models have been used since the 1950s when Freidson first examined home care management from a behavioral perspective and described health behavior as a series of behaviors in a social context. According to Freidson health seeking involved

> a network of potential consultants, from the intimate and informal confines of the nuclear family through successively more select, distant, authoritative laymen,

> until the “professional” is reached. This network of consultants, which is part of the structure of the local lay community and which imposes form on the seeking of help, might be called the “lay referral structure.” Taken together with the cultural understandings involved in the process, we may speak of it as the “lay referral system. (1959:377-378)

This implied that people tried home remedies or what they could find around; then casually consulted with friends, neighbors, and relatives; considered their suggestions against their ideas and convictions; and then took action. Following Freidson, Polgar (1963) and Chrisman (1977) also examined health-seeking behavior as a process in which health seekers follow a series of steps.

In 1969, Schwartz studied health-seeking behavior patterns in Indonesia and observed that people follow a variety of behavior patterns. She introduced a way to record sequential behavior and identify patterns and then she used three treatment modalities to find out which among them was used first and second by health seekers. She concluded that each of the three modalities could occur in any position. Through this approach Shwartz found that caretakers follow a hierarchy of resort to health care alternatives.

Fabrega (1973) designed a method for recording or collecting information about health-seeking activities. His method takes three things into consideration: (a) the information that lay people use, (b) the chronological ordering of health-seeking activities, and (c) prediction of alternatives associative with an illness episode. His method divides the process of health-seeking behavior into nine stages. Fabrega suggests a data collection instrument called an *illness graph*. It incorporates not only what people do but also how the signs, symptoms, and interruption of routine change as well.

Others who have made proposals on the process approach include Chrisman (1977), Mckinlay (1972, 1973), and Igun (1979) who have proposed frameworks that are a mixture of the behavioral and the cognitive approaches. Chrisman's stages include (a) symptom definition, (b) illness-related shifts in role behavior, (c) lay consultation and referral, and (d) treatment actions and adherence.

Suchman (1965) suggested five cognitive stages which people use to select health care: (a) symptom experiences, (b) assumption of the sick role, (c) medical care contact, (d) dependent-patient role, and (e) recovery/rehabilitation. Suchman also incorporates the lay referral system in the framework. A review of the process models shows that each model builds on information from previous models.

Cognitive Decision Making

The cognitive decision-making approach, while seeking to understand the considerations that influence an individual's decisions during an illness, also tries to identify the criteria of choice that underlie treatment decisions. Decisions may be taken under conditions of certainty, risk, or uncertainty. For a critique of decisions under conditions of certainty, see Fjellman (1976).

Decision making is said to be riskless or certain when there is a determined relationship between action and payoff. Thus, each choice leads directly to only one future state of the environment. The decision maker's task is to figure out which payoff he or she likes best, under the given circumstances, and then to take the appropriate action (Tversky 1972).

Under conditions of risk or uncertainty, a person has no way of knowing beforehand, which behavior will get the desired results. Thus, the decision maker is faced with a two level task: (a) to order the states of the environment according to some rules of preference and (b) to decide upon some strategy that has a good chance of leading to the desired result (Fjellman 1976).

Natural decision making seeks to understand decision making processes that take place in a normal social and cultural context. Decision models are classified into two types: normative and descriptive. Normative decision models are based on the principle that people are rational beings and would always behave in a way that yields or maximizes benefit and or reduces costs and losses. According to normative decision theory, people mentally calculate the advantages and disadvantages of different alternatives and then choose the one that offers the highest benefits for example (Fabrega 1973, 1974).

On the other hand, researchers using descriptive decision models hold that normative decision models are not realistic because people do not always make complex mathematical calculations when taking normal day-to-day decisions (Quinn 1978, Tversky and Kahneman 1974). Descriptive decision theorists claim that people develop strategies or heuristics which simplify the decision making process. Anthropologists who have adopted this approach to study decision-making in natural settings, have argued that in recurrent choice situations like that of illness, where people must regularly choose among alternative courses of action, the members of a given group often come to have a common set of cultural standards used in choice situations. These shared standards of choice can be discovered by examining how information is evaluated by individual actors and what considerations are involved in their choice of treatment (Garro 1985). Such considerations include respondents' rationales for doing what they do.

Rationales

Many studies of health behavior focus on understanding what caretakers do, but almost all such studies are based on reported behavior—that is, emic data about behavior. For example, researchers often ask questions about why caretakers do what they do. Such questions elicit information about the rationales or the justification for what caretakers do. For example caretakers may be asked why they chose to take the child to the hospital rather than to the health center or to the traditional doctor rather than to the hospital. There are two problems with this approach:

1. If it is used after the behavior has already taken place, the answers might be rationalizations of the behavior, taking the outcome of the behavior into account.

2. When the question is framed in that way, respondents may understand it to mean that interviewers disapprove of their behavior. In my own research, respondents thought that perhaps we preferred them to go to the hospital simply by our asking the question.

The result was the well known "deference effect," where respondents report socially desirable behavior and behavior that they think interviewers want to hear about (REF). One way to counter the first problem is to ask people about their rationales while the illness and behavior are ongoing. Let them give the information fresh, in the heat of action. For the second problem, we often explained to our respondents that we do not hold or consider any of their behaviors wrong and that our job was not to promote their use of any particular health facility or tradition.

Decision models have been useful in the study of the market place in the United States (Plattner 1982), smoked fish supplies in Ghana, West Africa (Gladwin 1975), agricultural economics (Gladwin 1980, 1982), and medical and health-seeking behavior in Mexico (Young 1980, 1981; Young and Garro 1982; Ryan and Martinez 1996). Researchers use informants' statements about their ideas on treatment options to construct decision models. The models present a description of the standards of choice in an explicit and testable manner. Once constructed, the model can be compared against a sample of independently collected data on actual choices made by members of the community. The power of the decision model is in its testability.

Decision Making as a Process

For analytical purposes, researchers study the medical decision-making process as a series of steps or stages (Suchman 1965; Fabrega 1973). Each stage is a transitional step at which the decision maker evaluates the grounds covered, and makes decisions on how next to proceed. Ryan (1995) described the decision-making process during an illness as comprising four steps: illness recognition and diagnosis, consideration of alternative treatments, evaluation and selection among treatments, and evaluation of the treatment results. Each stage is an adaptive response to the health problem as it is at the time. The stages are flexible and are transitions at which a decision maker assesses the illness situation and takes a new action or strategy. While the stages are distinct or separated from each other for analytical reasons, in real life it would be difficult to distinguish them. The stages are not followed in a lineal manner.

Ethnographic Decision Tree Models

Ethnographic decision tree models are useful in bringing out people's behavior and their rationales on why they do what they do. Decision tree modeling has been used with high predictive accuracy in medical choice in Latin America (Young 1980). Young built a model in Pichataro, a Sierra Tarascan town in Mexico, that predicted the use of multiple treatments with 95% accuracy. His model was based on four criteria that people used to make treatment decisions. These were 1) the seriousness of the illness; 2) whether an appropriate home remedy is known for the illness, 3) the actor's estimate of the relative likelihood of cure using folk-type treatment, as compared to western-type treatment, for the specific illness at hand, (spoken of in terms of 'faith') and 4) the costs (transportation requirements) associated with the physician alternative and the availability of resources to meet these (Young 1980).

Mathews and Hill (1990) built a similar model in Costa Rica that predicted 62%. Ryan and Martinez (1996) looked specifically at seven treatments used by mothers to manage diarrhea episodes in children and were able to predict 84% of behavioral outcomes with eleven rules. In their studies, they found that the criteria that was most commonly used by caretakers to seek health treatment included faith, wealth/transport and severity. To build a good decision model one begins by gathering classic ethnographic information so as to understand the emic explanatory model(s) (Kleinman 1980).

Critique Of Ethnographic Decision Models

Despite the advantages of the process approach, it has been criticized for using rather small sample sizes and extremely complex data that are difficult to generalize. Critics of cognitive decision modeling like Chibnik (1980:87) and Stoner (1985) (as cited by Mathews and Hill [1990:155]) hold that decision theorists emphasize group patterning over individual response to illness. These critics point out that, as a consequence, decision models are unable to represent adequately, the intra-cultural variation in treatment choice and the socioeconomic or cultural differences that may account for that variation. Mathews demonstrates, however, that this problem can be addressed by combining decision modeling with explanatory modeling. She concludes that a combination of the two approaches makes it sensitive to the complexities of the socioeconomic, political and cultural context (Mathews and Hill 1990). Mathew's decision model accounted for 67% of the treatment choices made by her study population in Costa Rica (Mathews and Hill 1990). After identifying the source of the errors in the model, she used cultural explanatory models to explicate the errors. In her conclusion, she states that contrary to Alan Young's (1976) criticism that "approaches focusing on individual choices tend to overlook the importance of the system of social relations that produces the forms and distributions of sickness experienced by the individuals in the society," her "combination of approaches, used to assess regional and group patterns as well as to explore individual variation from those patterns, does capture behaviors that stem from differential social relations" (1990:55).

Another criticism raised by Mathews (1987:55) holds that the "bulk of predictive success involves decisions which are, for the informants involved, matters of routine." Citing James Young's study, she says that Young (1981) was "able to predict with 100% accuracy for the choice to rely on self-treatment (home remedies) for an initial, non-serious illness." But Young was less successful in "predicting infrequent, and less routine, choices of treatment for moderately serious illnesses or illnesses that have failed to respond to prior remedy" (Mathews and Hill 1990).

Perhaps this handicap of decision making arises from the kinds of decisions on which the method focuses. An activity has to be repetitive to be predictable. The fundamental assumption of cognitive decision studies is that when something like an illness is recurrent in a society, people wind up developing standard solutions for (or ways of dealing with) the problem. If something like an illness is infrequent or new, then people may not have figured out common responses to it—responses to it will differ in the community, in the short run and may correspond to idiosyncratic approaches. Consequently, it will be difficult to predict responses or to identify patterns of behavior.

Mathews herself explains the differences in predictive ability on the basis of goals. Most cognitive decision making studies, she says, assume that the decision maker has only one goal and focuses on the assumed goal. She shows that when an illness strikes, the family members of the patient may be faced with a number of goals, like selecting a treatment choice, obtaining a cure for the sick person, preserving family harmony, maintaining cultural traditions and conserving scarce financial resources. She maintains that without some understanding of the goals being considered by the individual, and the relationships that obtain among those goals, the anthropologist is unable to predict correctly the likely decision outcome nor understand (in those instances when a correct prediction is made) why the decision proved successful.

> Formal models that emphasize prediction over understanding are unable to tell us how individuals draw on cultural and personal knowledge to define, organize and select among goals because such models assume from the outset that a single standardized goal is being pursued by all decision makers. Only by investigating how decision makers themselves frame the decision problem (i.e., define the goal or set of goals to be pursued) and structure its solution (i.e., prioritize and implement the goals) can we begin to understand the ways in which goals influence the decision process and shape the likely outcome. (Mathews 1987:55)

Could it be said, in other words, that prediction difficulties arise because decision makers do not all face the same conditions and constraints and may not use the same criteria in making their decisions? The decisions of the rich, for example, may differ from those of the poor while those of the more informed may differ from those of the less informed. In other words, people may be using different criteria.

Critics of ethnographic decision tree modeling have also held that the method relies heavily on reported behavior. Bernard et al. (1984) make clear the weakness of those data. Informants are known to forget their behavior and to report inaccurate information and self-reports may be rationalizations of behavior. To avoid these problems, researchers ask for information on behavior that involves only a short recall time frame, like one or two weeks, but the real power of the decision modeling approach lies in its testability. In our case, we collected ongoing cases of diarrheal treatment behavior and divided past behavior into recent and historic categories.

Conclusion

In this chapter, I have discussed theoretical frameworks that have been used in the study of health behavior. Following Ryan, health behavior studies can be summarized in two types of models—determinants and process models. I have shown that each of these models has advantages and weaknesses. Determinant models are synchronic and useful in bringing out etic perspective. They are weak at analyzing the emic perspective and in predicting health behavior. Determinant models are also weak at bringing out the ideational aspects of a research problem.

Process models are strong at prediction and in capturing the emic perspective. However, they require a long time on the field and may rely on small samples. When used in combination, however, both models can be most beneficial.

Home Case Management of Diarrhea

To counter diarrhea in Cameroon, parents have six therapeutic options. These are (a) consulting native doctors, (b) going to hospitals or health centers, (c) seeking treatment and advice from other people (relatives, friends, and neighbors), (d) using over-the-counter drugs, (e) managing illnesses at home, and (f) doing nothing.

Many mothers in Cameroon believe that treatment with ORS works only if it helps in stopping the diarrhea. Some mothers believe that diarrhea has a purging effect and so may be desirable as a way to "wash the stomach." Some women use drugs to treat their children while others take theirs to the health department or hospital. Many mothers in the two villages on which I report here who use drugs to fight diarrhea have little or no understanding of the actions of those drugs, at least from a biomedical perspective. A drug is favored if diarrhea symptoms disappear after its usage. Some women in the Bakoum area purge their children when they have diarrhea (see section on the Bakoum area in Chapter 6).

At the domestic level, mothers and caretakers confront the illness directly. How they respond to it depends on many factors, including their education, treatment alternatives at their disposal, knowledge of treatment, exposure to information about diarrhea, their social networks, socioeconomic status and their past experiences. There is a general descriptive term for diarrhea: It is called *Koumleu* or *fole* in the Bakoum area.

The use of ORS is being promoted by the Ministry of Health. However, most mothers use ORS only when they take their children to the health centers or hospitals. Unlike most medicines which are available in provision stores, ORS is available only in the hospitals. Mothers are also taught how to use sugar salt solution (SSS) when they attend Mother and Child Health (MCH) clinics, but the few who prepare it do not always do so as required.

When diarrhea occurs, mothers take their time to observe the child before deciding on whether and where to seek health care outside the home. This “waiting” period could last up to a week or even more. Within this time the mother observes the child closely, taking note of her or his stool, temperature, feeding, play, and general appearance. A mother may also discuss the problem with relatives and friends and may administer home treatment. The stool is a key signal of diarrhea and a major indicator of the child’s health to the mother . Mothers note its frequency, color, smell, and texture, and all contribute to tell not only the presence of diarrhea but also its cause and severity.

Home management techniques comprise change of diet, use of local herbal concoctions, (local pharmacopoeia), use of drugs purchased from local vendors, and other remedies obtained from relatives and friends. It appears that mothers evaluate and re-evaluate the child’s illness constantly. Their diagnosis and treatment behavior also change depending on this constant evaluation and reevaluation. It is also common that mothers try different sources or kinds of treatment either simultaneously or one after the other.

CHAPTER 3
WHAT DO WE KNOW ABOUT RESPONSES TO DIARRHEA AROUND THE WORLD?

Introduction

The universal occurrence of disease implies that human beings and societies are constantly confronted with similar biological disease states which cause changes in human physiology and functioning and lead them to take action (Fabrega 1973:470). We should expect, therefore, that people who face the same illness characteristics anywhere should respond to them in the same way.

Much anthropological literature, however, holds that people in different societies respond differently to disease states. What then brings about the differences in response to illness? The answers to this question are not uniform. One school of thought holds that differences exist because of cultural differences in the world; that a people's culture determines their attitude, perception and response to illness. Another school proposes that structural forces more than culture determine the way people respond to illness states. Yet, a third school holds that both structural and cultural factors are responsible together in some unspecified way. Chand and Bhattachryya (1994:406) analyzed the language used to describe acute respiratory illness episodes in India and concluded that "it is clear that these (treatment) decisions are not based solely on health beliefs, but also on social and economic factors." Supposing that both cultural and infrastructural factors are responsible, how much difference does each make? That is the basis for a program of research. The question here is whether similar physical characteristics of disease (signs, symptoms, duration, and frequency) lead to a more or less uniform response across cultures or to variety of responses. Any attempt to answer this question requires an examination of how ordinary people go about responding to the sick under natural conditions.

In this chapter, I examine this question by reviewing published papers with ethnographic information on diarrhea management in cultures around the world. I begin with a discussion of diarrhea followed by a review of treatment behavior, and beliefs about the causes of diarrhea.

Diarrhea

Diarrhea occurs worldwide and is the largest killer of children in the world. Most deaths from diarrhea are preventable if children receive adequate care. Over the last 15 years, there has been an increased interest in understanding how mothers treat the illness. According to Ahmed et al. (1994), a child is considered as having diarrhea if he or she has three or more loose motions in a day or in 24 hours, and the onset of a diarrhea episode is considered to begin from the first day that loose motions are noticed. An episode ends with the onset of three or more consecutive diarrhea-free days. Ahmed et al. also distinguished between persistent and acute diarrhea. "Persistent diarrhea was defined as an episode that lasted 14 or more days while episodes of shorter duration were termed acute" (Ahmed et al. 1994:857). Dysentery are bloody diarrhea episodes (ibid).

Treatments

Studies of treatment behavior examine the factors that determine whether a child with diarrhea is treated at home, outside the home (at hospital or traditional healer's), or not treated at all?

In the international effort to reduce morbidity and mortality due to diarrhea, much of the research on diarrhea has focused on efforts to introduce ORT or oral rehydration solutions and salts (ORS). Anthropologists actively search for folk taxonomies and terminology, beliefs, knowledge, health seeking behavior and practices so as to help health implementers introduce ORT more effectively for household management of diarrhea. (Martinez et al. 1996b; Martinez et al 1996c Kendall et al. 1984; Scrimshaw and Hurtado, 1988; Nichter, 1992; Kenya et al. 1990; Malik et al. 1992; Green 1994). Some studies identify local foods and fluids and test them to see which ones could be helpful during diarrhea episodes. The goal is to find foods and fluids already in use by the communities that can be used for the treatment of diarrhea as ORT. Such foods and fluids can be easily adopted by the community for managing diarrhea (Martines et al.1996b; Martinez and Habicht 1996a,).

Unlike the literature on adult health seeking behavior, researchers of children's illnesses are more interested in what mothers do inside the household, that is, with mothers' administration of fluids such as water, cereal-based gruels, oral rehydration solutions (Iftikhar et al. 1992; Martinez et al. 1996b, 1996c; Green 1986), and breast feeding (Hoyle et al. 1980). They are also interested in dangerous practices that cause diarrhea and lead to dehydration, including purging (Riley et al. 1990; Mock et al. 1993; Kumar et al. 1981), and the discontinuation of breast feeding and food intake (Kumar et al. 1981). There is a concern with when mothers decide to seek care outside the household (Ryan 1995; Nyamongo 1998). Some studies examine multiple treatments. However, few examine the process by which people move from one treatment to another (see Ryan 1998 for details on lay people's sequential treatment behavior).

In a review of the literature on diarrhea treatment in 20 societies, I identified 85 different kinds of treatments. Table 3.1 (free list) shows the results. Liquids specifically designed for rehydration (including oral rehydration solution (ORS), ORT and sugar salt solution (SSS) were mentioned in 50% (10) of the sampled societies. This speaks well for the promotion of these remedies. However, more field studies will shed light on how much ORS is being administered at home and how much is being administered to children at health facilities. It is being promoted as a home remedy that parents and caretakers can prepare and administer at home. It will be of interest to find out if this goal is being met. It will also be of interest to find out how many cases of those ORT given at home are prepared and administered as prescribed by WHO. In a study in Cameroon, for example, we found that many mothers who reported that their children had been given ORS had had it at the hospital, and those who reported having given it at home had varied versions of preparing it.

"Home remedies" have the highest frequency in Table 3.1, being reported in 90% (18) of the societies examined. This is followed by "pharmaceuticals," 75% (15), and "change diet," 70% (14). In 10 (50%) of the societies, the use of "indigenous healers" was mentioned as a treatment alternative for diarrhea. Use of physicians and hospitals were mentioned in 40% (8) and 35% (7) of the societies, respectively. If these two are combined, then about 15 (75%) receive treatment from professional western-type sources, not counting the use of self-prescribed pharmaceuticals. "No treatment" featured in 45% (9) of the societies. "Purging" was mentioned in 25% (5) of the sampled societies. Massage was reported in four societies and "suspend breast feeding," "suspend milk," and "water" were each reported in three societies. "Coca cola," "reduce water intake," "suspend suspected foods," "rice water," and "continue breast feeding" were reported in two societies each, and the rest of the treatment alternatives were reported in one society.

The high frequency of treatment at home substantiates the assertion by Kleinman (1980) that the treatment of most illnesses takes place at home. Also, the percentage of societies (45%) where the "no treatment" option was mentioned corresponds to Green's finding in Bangladesh, where 42% of respondents claimed that they "did nothing." (Green 1986)

It was noticed that contradictory modes of treatment coexist in the same culture. For example, among the Masaai of Kenya, treatment modalities of mothers who had been to school contrasted with those of mothers who had not had a formal school education. Even among those who had been to school, there were some surprising and contradicting treatment notions (see Patel et al. 1988). In the United States, some people give juices while others suspend juices, both as ways of treating their children of diarrhea (Fancis 1994). In Honduras, powdered or cow's milk, meat, eggs, and other foods are suspended, but breast feeding is continued (Kendall et al. 1984). Researchers (Green et al. 1994:77; de Sousa 1991 cited by Green) have also found the coexistence of contradictory practices like "give boiled water, salt, and sugar " versus "reduce water intake" and "give less liquid foods" in Mozambique. These are cases of intra-cultural variation and most probably a result of new education messages and practices existing side by side with old knowledge and practices.

Cross culturally, diarrhea at "transition times" (like teething, crawling, walking, weaning, and standing) is treated as a trouble, not as an illness (Nichter 1992:40). It is expected and considered a normal body response to body transition or changes and is, therefore, not treated (Nkwi 1994; Scrimshaw and Hurtado 1988; Shawyer 1996; Rauyajin 1994). "Because episodes of mild diarrhea are expected among children under three years of age, medical intervention is unlikely to be perceived as an immediate need unless diarrhea is accompanied by complaints such as fever or vomiting" (Nichter 1992:40).

In some cultures diarrhea treatment is associated with its perceived cause. In highland Guatemala, for example, "distinct traditional treatments were associated with specific types of diarrhea. Treatments given for 'hot' diarrhea are not those given for diarrhea due to 'cold' or evil eye, nor are those given for evil eye the same as those given for diarrhea due to cold" (Burleigh et al. 1990).

Only in the study on the United States was treatment with fluids, as a way of replacing lost fluids, frequently mentioned by mothers. In most studies "loss of water" or dehydration as a symptom that needed to be treated with fluids was rarely mentioned by mothers.

Feeding Practices

While some foods and fluids are restricted during diarrhea, some others are encouraged. In India, some foods are considered safe during diarrhea but others, like milk and water, are restricted. In the United States, some mothers encourage the drinking of Gatorade and juices, and others restrict milk and milk products. In Bangladesh, Green (1986) noted that virtually all mothers restrict certain foods and emphasize others—known collectively as pathya—thought to be appropriate for illnesses like diarrhea.

> It should be noted that mothers have most of the responsibility for management of their children's illness, although in [Islamic areas like Bangladesh,] Islamic purdah (female seclusion) means that men tend to be the ones who travel away from home to buy medicines (including ORS) and initially consult practitioners. (Green 1986:361)

Green (1986) also noted that women seem to be more knowledgeable than men about home remedies and appropriate diet during illness. Ryan (1995) arrived at a similar conclusion about the Kom of Cameroon.

Anthropologists have been important contributors to the literature on diarrhea. Not surprisingly, many of the studies have relied on in-depth ethnographic data and have been quite descriptive. Most studies examine a single cultural group and with few exceptions (Yoder and Hornik 1996; Martinez et al. 1996d) have not made comparisons across cultures. Most follow a determinants approach and examine the correlates between particular behaviors and characteristics of the illness, patient, caregiver or household. I know of no studies that look at the effects of community or large macro level forces. Nearly all the articles I have located only deal with diarrhea in isolation from other illnesses that mothers may deal with (see Nichter [1993] for an exception). Below I review the key determinants known to affect treatment behaviors for diarrhea.

In general researchers have been most interested in how various factors related to the illness, patient, caregiver, household, community and region affect treatment behavior.

The typical biomedical signs of severe dehydration due to diarrhea (sunken fontanel, sunken, tearless eyes, and loss of skin elasticity) were not mentioned in elicited symptoms lists. Lay people do not seem to relate these signs to diarrhea or to dehydration. In many cultures, sunken fontanel is seen as a distinct illness rather than a sign of severe dehydration due to diarrhea. In Boukoum, it is known as an illness that breaks the child's head into two and is believed to be caused by a certain kind of fish. Consequently, children are not fed fish.

Diagnostic Labels

> Much treatment for diarrhea across cultures is based on how it is classified, and often, classification is based on perceived causes and symptoms. Malik and colleagues found that mothers' emotional responses to symptoms are in part shaped by the illness categories to which they assign a child's diarrhoea episode, and maternal fears that symptoms of diarrhoea may be life threatening are associated with previous experiences with death of children, with treatment choices and help-seeking. (Malik et al. 1992:1043)

Many studies show that diarrhea in most societies is categorized into many types. In Zoetele, Cameroon, we found that diarrhea was classified into 10 categories (Nkwi et al. 1994; Mbeh 1994).

Theoretically, one would expect that ailments locally explained by traditional etiology would be treated in a traditional way or by a traditional doctor. Many studies show that this is not the case. Folk treatment across cultures is highly dependent on diagnosis and folk diagnosis is pragmatic, involves trial and error and the constant monitoring and evaluation of the response of the illness to medication (Koo 1987). The efficacy of the treatment is established if the illness goes away after medicine is taken.

Referring to the treatment of diseases in Pichataro, Michoacan, Mexico, Young (1981) found four criteria that people used to make treatment decisions. These were (a) the seriousness of the illness, (b) whether an appropriate home remedy is known for the illness, (c) the actor's estimate of the relative likelihood of cure using folk-type treatment, as compared to western-type treatment, for the specific illness at hand (spoken of in terms of 'faith'), and (d) the costs (transportation requirements) associated with the physician alternative and the availability of resources to meet these.

Perceived cause was a significant predictor of health-seeking behavior and/or for the utilization of formal services:

> Illness ascribed to "physical" causes or to a combination of "physical" and "social and spiritual" causes were brought to the attention of a representative of the formal health services more often than illnesses ascribed to "social and spiritual" causes only. (De Zoysa et al. 1984:727)

In a review of 22 diarrhea studies done on 24 cultures (Mbeh 1997a), investigators mentioned over 318 causes of diarrhea. The findings show that teething was mentioned as a cause of diarrhea in 50% (12 out of 24) of the countries described. It is worth noting that this figure could increase if cases where teething was phrased in different words like "tooth eruption," or "child cutting its first teeth are considered." Bad food was reported in 33% (8 out of 24) of the cultures as a cause of diarrhea and the percentage could also be higher if all the cases of bad food that were mentioned in different words, like bad or damaging food and contaminated food are considered. Dirty water and evil eye are each reported in 4 (18%) cultures while raw fruits, hot weather, and creeping each have a frequency of 3 or (14%). Fifteen other causes have a frequency of 2 (9%) each, and all the rest are single occurrences (see Table 3.1 for frequency list).

Some key themes on the causes of diarrhea are reported in most of the papers and cultures. They include underlying concepts of illness, folk concepts about the fontanel in relation to diarrhea, balance, heat, breast milk, contamination, pollution, social environment, and developmental milestones. I consider them one by one.

Developmental milestones (sitting, crawling, standing, teething, and walking) are universally regarded as causes of diarrhea. These are transitory stages and diarrhea seems to signal them. Universally, diarrhea caused by these factors is considered normal and variously referred to as natural, regular, ordinary, simple, or normal. It is known to be common and not dangerous. Parents expect it, are not surprised when it occurs, and only treat it if it lasts for "too long." In most cultures it is considered not preventable since it is regarded as part of growing up. Severe diarrhea is generally the one associated with vomiting and blood. Other severe diarrheas include those caused by mystical forces, and social environmental actions.

Mothers are placed in a key position as potential conduits of diarrhea to their children. However, it is believed that they can potentially cause diarrhea in their children through breast milk, their social and physical activities, social relations, feeding habits, and their physiological and emotional states. In Gujarat, India, for example, a child could become ill if its mother breast fed it while sexually excited. The belief is that her breast milk is hot in such a state and could cause illness (Pool 1987). In Pakistan, a mother could be the cause of diarrhea on her child if she eats hot foods, works in hot sun, has a fever, becomes pregnant and milk sours, takes a hot bath, drinks hot water, takes hot medication, eats spoiled or unclean food, eats food that does not agree with the infant, or does not eat on time (Mull and Mull 1988). Only in Mozambique was the father mentioned as a potential cause of diarrhea to his child if he, like the mother, had extra-marital sex and touched the child thereafter without washing.

Spoiled or sour breast milk as a cause of diarrhea is common to most cultures, but they differ in their explanations of how breast milk becomes "bad." In some cultures of Cameroon, breast milk turns sour if the mother comes into contact with some wild plants in the farm (Nkwi 1994). In Mozambique, breast milk could be spoiled by a mother's new pregnancy . Nursing a baby with such milk could cause diarrhea (kuamwissira) (Green et al. 1994). Similarly, in Sri Lanka there are various factors that cause breast milk to turn sour. It is thought that breast milk spoils due to a psychological state caused by "loneliness associated with vulnerability, fear and shock" (Nichter 1988:40). As in Mozambique, "becoming pregnant while lactating is thought to render breast milk weak and indigestible," thus likely to cause diarrhea (Nichter 1988:41). In Thailand a mother's breast milk would spoil if she consumed foods prohibited by custom (Rauyajin et al. 1994; Shwayer et al. 1996)

Cultural Beliefs and Perceptions

Beliefs are known to influence health behavior. For example the hot-cold belief is common in many parts of the world and affects the treatment patterns that people pursue (Lozoff et al. 1975; Mull and Mull 1988; Nichter 1988; Stapleton 1989).

Among the Bantu groups, diarrhea is seen as a process of cleansing the bowels of impurities. The explanation is well expressed in Mozambique by the concept of *Nyoka* (*singular for Manyoka*), a symbolic guardian of bodily purity believed to reside in the patients stomach. It reacts to dirt in the body by causing diarrhea which serves to flush the impurities out of the body (Green 1994).

Knowledge, perceptions, and interpretations of disease in general and diarrhea in particular fall within larger frameworks of disease interpretation in each region. The large frameworks cover many cultures. One of the underlying causes of illness mentioned in most of the studies is that of *balance* or *imbalance.* Balance featured in both Bantu and cultures with humoral medical systems. However, these cultures differ in their interpretations and explanations of the phenomenon.

Among the Bantu speaking cultures, balance is among social, physical, and spiritual forces. There must be a balance between these forces for there to be good health.

"Social disharmony leads to resentment, anger, envy, and other negative emotions and often to sorcery and witchcraft" (Green et al. 1994:5). Certain kinds of children's diarrhea are said to be caused by a lack of balance among these forces. In the humoral cultures the concept of balance is also present but it exists between hot and cold; wet and dry. The balance here is maintained in the body through medicines and foods, whereas in the Bantu area, it is maintained through medicines, food, and rituals. Rituals are useful for appeasing the spiritual world which has influence in the real world. In Sri Lanka diarrhea is seen as a sign of imbalance or transition (Nichter 1988). Diarrhea is considered a hot disease. It indicates that there is an imbalance of hot and cold forces in the body. The patient is treated with cold foods (especially in the case of bloody and mucus diarrhea) to reestablish the balance (Nichter 1988). In Sri Lanka, some kinds of diarrhea are considered hot and treated using cold substances (Nichter 1988). Beliefs about contamination or pollution are common, but one finds contrasting concepts between, on the one hand, the Bantu speaking region and related cultural groups in Africa and countries (cultures) that have the humoral illness concepts in South East Asia, Latin, and Central America.

Pollution was commonly said to result from mystical contamination which results from death and women's reproductive processes (Green 1994). Contamination can be divided into physical and spiritual. Food soiled by dirt or which has come in contact with germs or flies is contaminated and can cause diarrhea. That is physical contamination. Infected food or food that flies have settled on are examples, but when a child has diarrhea because a funeral or other ritual was neglected (as would be the case in Mozambique, for example), it is spiritual contamination or pollution. In Swaziland a child could have diarrhea through contamination when a ritually unprotected child comes in contact with or inhales dangerous medicinal vapors from medicine people. Among the Tonga, pollution is believed to be a form of heat of a spiritual dimension. Cold substances are used to treat diarrhea caused by such pollution (Green 1994). Heat is also seen as a concept that plays a big role in causing diarrhea. The concept of heat has some similarities and differences that are regional when we examine the details. In each case where diarrhea is thought to be a *hot* disease or caused by heat or by an imbalance of *hot* and *cold*, it is treated with *cold* foods or medicines though these *cold* substances may differ from locality to locality.

The data suggest that certain causes for diarrhea are common in many of the cultures studied. “Natural diarrhea” or diarrhea from developmental milestones, occurs with the highest frequency (in 50% of cases) across cultures. However, local interpretations of the causes differ. For example, in Mozambique, extramarital sexual intercourse is believed to cause diarrhea (phiringaniso) in children. It occurs if the man engages in extramarital sex when his child is still breast feeding and if he does not bathe before touching the child (Green 1994). In other cultures, only intercourse by women leads to children’s diarrhea. In the humoral cultures, intercourse causes heat in the body. The heat makes breast milk hot. If a mother breast feeds her child with such hot milk, it is likely to cause diarrhea in the child.

Most studies of illness behavior carried out on single cultures state that people's treatment is guided by their beliefs on the etiology of disease. The findings suggest that while preventive activities tend to follow folk beliefs of causation, therapeutic behavior seems to go beyond such concepts, as caretakers are driven by motivations to treat the illness by any effective means.

The results, though not totally conclusive, are, however, suggestive. Beliefs about diarrhea tend to be superimposed on underlying cultural, social and cosmological concepts.

There are some regional similarities in the way people perceive diarrhea. Similarities tend to be at the higher conceptual level. When we look closely at the details, however, we notice that there are differences. For example, many studies mentioned fruits (raw, overripe, sweet) as a cause of diarrhea, but they differ in the type and nature of fruits because the fruits mentioned are usually those common in the locality. Similarly, concepts, like “cold and hot,” “contamination,” “balance” are commonly invoked, but while these are present in most cultures, they are given local meanings and interpretations.

The perceptual field of individual cultures determines symbols that are used to explain causes of diarrhea or illness in general. The more geographically clustered the cultures are, the more similar the symbols. However, no matter the distance between cultures, there are some underlying concepts like *balance* and *natural diarrhea* that run across cultures. Diarrhea plays the role of a social and perceptual thermometer. Socially, it indicates the relationship between a mother and her child, between parents, and between mother, child and their entourage.

The data suggest that with regard to treatment, patients and caretakers may hold explanatory models of disease causality and yet seek treatment even from medical sources and systems with opposing causal theories, as long as they have the faith that such treatment alternatives will cure. Among Hong Kong Chinese for example, Linda Koo (1987:414) notes that “many patients saw their doctors not as representatives of differing medical systems than as curers of their immediate problem.” This is because the main concern is to relieve the sufferer of the symptoms regardless of the medical system. The layman’s ability to mentally compartmentalize causation from treatment showed an eclectic and pragmatic approach to dealing with physical disorders in the body (Koo 1987:414). This contradicts the position that traditional people seek treatment from traditional doctors because they share the same cultural perspectives. It also raises questions about the extent to which culture controls therapeutic behavior.

While caretakers recognize a fallen or sunken fontanel as a sign of illness, they rarely associate it with dehydration. In Swaziland and Zambia, for example, where fallen fontanel was mentioned, it is considered a disease entity with its own causes. Diarrhea is regarded as its symptom, but sometimes diarrhea is mentioned as its cause. If a child is breast fed in the midst of many people, he or she may have a fallen fontanel because the child may have been exposed to another child who has a stronger “influence.” Children are protected by wearing preventive charms around their bodies. This has an impact on therapeutic behavior because while medical officials are promoting oral rehydration therapy to control dehydration, parents and caretakers are focusing on the treatment of symptoms (Green 1985; 1994).

Healers in Zimbabwe report that natural diarrhea caused by growth milestones cannot be prevented. Their opinion is echoed by some informants in Thailand and the United States. Parents think that children will always eat things from the environment that cause diarrhea and preventing them from doing so cannot be assured. Prevention against diarrhea caused by violation of social customs is by withdrawing from the negative behavior. To prevent against mystically caused diarrhea, ritual protection of the child is required as in Swaziland and Zambia. In general, preventive measures tend to follow beliefs about causation (Green 1985; 1994).

Severity

Ethnographic evidence shows that health-seeking decisions are not simply based on symptoms but are dependent on complex sets of considerations. Nichter found that

> interpretations of specific illness episodes and health care seeking actions are not simplistically triggered by symptoms. The severity and meaning of diarrhea is interpreted in respect to a range of factors including age of the afflicted, season of occurrence, suspected etiology of immediate onset, factors influencing persistence or flare up, treatment failure etc. Natural, social and moral imperatives related to states of vulnerability enter into the actual construction of illness identities and health care decision making. (1992:40)

Researchers have suggested that severity is a key factor in determining health behavior (Kasl and Cobb 1966a, 1966b; Levine 1990; Bently 1992). Severity has been used extensively in ethnographic decision models (Young 1980; Hurwicz 1995; Mathews and Hill 1990). The criteria by which lay people assess severity are not well understood, but they may include symptoms, duration of illness, interruption of daily routines, and medications consumed. Lay people's judgments about severity are also found to influence where treatment is sought. Treatment for illnesses considered to be severe is more likely to be sought outside the household (Young 1980; Suchman 1965; Weller et al. 1997). Severity may be responded to differently in different cultures. In Kom, Cameroon, Ryan (1995) found that mothers took severe cases of diarrhea to the hospital while in Bangladesh, researchers found that severe cases of diarrhea were treated with sugar salt solution at home (Chowdhury and Vaughan 1988). Since severity is interconnected with symptoms, beliefs about illness causation, illness categories, and other factors that influence treatment behavior, it may be difficult to determine which factor has an overriding influence on lay people's health behavior. Another aspect of severity that has not been investigated closely is how severity changes with the duration of illness and how such changes influence illness categorization and treatment behavior.

The Patient

Some studies show that treatment behavior may vary according to patient characteristics. Such characteristics as age (Ryan and Mbeh 1996; Frankenberg and Leeson 1976) and sex (Chen et al. 1981; Ravindran 1986; Escobar et al., 1983; Hossain and Glass 1988) affect the kind of health care given to patients, especially to children. For example, in a cross-cultural study of pharmaceutical use, we found that mothers in both Mexico and Cameroon take a child's age into account before administering any drugs (Ryan and Mbeh 1996). It is also noted that twins tend to receive special treatment in many societies. In Mmen and Kom, I observed that mothers of twins often performed special ritual as curative or illness preventive measures for twins (Mbeh 1984, 1986).

The Caregiver

Treatment behavior has also been found to be influenced by characteristics of the caregiver. Such characteristics include formal education, beliefs, prior or past experience with or knowledge of the illness, and sociodemographics (gender, age, and marital status). Some investigators have noted that women with formal education are more likely to have children who are better nourished and with less infant morbidity and mortality (Palmer 1993). Studies of users of health services in New York found that underutilizers were not well informed about the workings of the health system (Rosenblatt and Suchman 1963, 1964).

In Cameroon, Ryan found that men claimed to know more home remedies than women, but women, acting as caregivers, were more likely to administer home remedies than men (Ryan 1995). People who have had prior experience with an illness would know the symptoms and would tend to repeat or avoid past behavior related to the illness. Such people also tend to give counsel to others confronted with a similar illness. It is known that people pass on left over medicines to others (especially to fellow family members and friends) when it is thought that the "new" patient is suffering from the same illness as did the "old" patient.

Malik et al. explored the idea that

> there is not a singular maternal response to "diarrhoea," but that two kinds of factors influence mothers' evaluation and behavioral response to diarrhoeal episodes in their children: 1) the type of illness of which diarrhoea is seen to be symptomatic; 2) a mother's previous experience with child diarrhoea and its consequences in particular child death, which shapes mothers' emotional response to this childhood illness. (1992:1044)

Malik and colleagues concluded that diarrhea is a symptom belonging to several popular illness categories, a conclusion that corroborates that of Scrimshaw and Hurtado (1988) and that of Kendall et al. (1984).

In Punjab, North Pakistan, maternal responses to various forms of diarrhoea in children ranged from "those who did not become alarmed and 'upset,' particularly for diarrhoea that is viewed as part of the normal process of growth and development, to exceptional concern and fear of death" (Malik et al. 1992:1048).

> Mothers' emotional distress and alarm in response to their children suffering from diarrhoea are associated with their interpretation of the meaning of diarrhoeal and related symptoms, their assessment of severity, cause and

treatment options, their previous experiences with severe diarrhoeal illness in their children and with difficult living situations (Malik et al. 1992:1049).

Beliefs About Illnesses, Treatments, and the Body

In Sri Lanka (Nichter 1992:43) found that ORS was considered as medicine and purging was to keep child's worms lean. Typical signs of acute diarrhea like sunken, tearless eyes, sunken fontanel and loss of skin elasticity were not mentioned in elicited symptoms lists. They appeared to have little cultural significance.

Green et al. (1994) noted that the fundamental "difference between traditional and modern treatment of diarrheal diseases [in Mozambique] is that the former attempts to go beyond symptomatic cure and employs a form of sociotherapy to rectify the problem in family relations that may be perceived as the underlying cause of a child's illness"—this applies to ritual treatment, which he regards as holistic and complementary to symptomatic treatment.

In the opinion of a healer in Mozambique, putting more fluids in the child's mouth would only increase the flow of diarrhea (Green 1994). Thus, liquid intake and enemas are seen as provoking the same end result and so are discouraged while in biomedicine, liquid intake (not enemas) is desirable and highly encouraged. Some healers advise mothers to allow less food and liquid into the child because "if less goes in less comes out in the form of diarrhea." The practice of prohibiting or withholding liquids to children can have adverse effects on the promotion of Salt Sugar Solution (SSS) as a one way of managing diarrhea at home. Most healers and mothers consider ORS as a remedy or a medicine against diarrhea rather than against dehydration.

In Honduras purgatives are mostly oils, salts, and absorbents that promote evacuation. Evacuation cleans the gut of its improperly digested food, considered dirty (Kendall et al. 1984).

Social Networks

Researchers have investigated the role of social networks in treatment choice and health behavior in general (Ryan 1995; Weller et al. 1995) One's health behavior is affected by the size and composition of one's social networks. In Wombong, Cameroon, Ryan (1995) found that literate people were more likely to use professional treatment services, while older people were less likely to seek health care from biomedical health facilities. Caretakers with larger kin networks in the village were less likely to wait for 24 hours after noticing signs and symptoms of an illness before administering some treatment, and people with weak ties had a higher tendency to use pills or to seek healers than people with predominantly strong ties. People in networks of educated people tend to use home remedies while those in younger networks were less likely to use home remedies (Ryan 1995).

Household

The household has been reported as a factor in influencing people's health care behavior. In Mali, Sarah Castle found that variation in illness management between the Fulani and the Dogon communities is accounted for by the "form and function of the mothers' household environments and their social position within them, which differ substantially between the two ethnic groups and between the Fulani social classes. She concluded that "mortality differentials therefore reflect not simply ethnic differences in beliefs or culture but rather, . . . , real variation in mothers' family environments and their social obligation or autonomy within them" (Castle, 1993:140-141).

Ethnicity

One aspect by which researchers have examined home management of illnesses is ethnicity. In a comparative study of household differentials in the home management of disease in Mali, Castle concludes that "neither traditional illness taxonomies nor perceptions of the cause, nature and prevention of more naturalistic illnesses such as diarrhoea, fevers and respiratory infections varied significantly between the Fulani and the Dogon communities in the sample" (Castle, 1993:140). The explanation was that medical knowledge was being exchanged between the two communities especially from the Dogon traditional practitioners whose medical knowledge of causes and treatments elicited from divination was respected and sought after by the neighboring Fulani (and Dogon as well), who had very few professional traditional healers. Interestingly, the two communities manifest differences in illness management but such differences "do not reflect different beliefs about appropriate action for specific types of illnesses associated with each ethnic group. They are rather connected with pathways of decision-making linked to characteristics of the consultation process" (Castle, 1993:140).

In Manica, Mozambique, where successive levels of explanation with more fundamental causes underlying more immediate causes, treatment is usually adjusted accordingly. The causes of diarrhea are usually reviewed and revised and rediagnosed if the symptoms persist after initial treatment following initial diagnosis (Green 1994).

In rural Zimbabwe, remedies were given on their own or along side treatment prescribed by the health workers (De Zoysa et al. 1984).

Another common feature observed by researchers is that the same illness episode may be taken to various healers in order to maximize chances of cure, where the different systems are viewed as potentially complementary rather than competing.

In Guatemala, out of eight types of diarrhea only one was said to be curable at the health post. Home remedies include "waters" (aguitas) infusions of herbs and sometimes purchased pills or powders in boiling water which is then cooled and given to the child in small quantities as a remedy not as ORT (Scrimshaw et al. 1988).

Treatment Rationales

Most studies do not examine systematically the rationales that people use as they go about treating diarrhea in particular and illnesses in general. Elaine Francis's study (1994), however, is an exception. Francis carried out a study on the care of children with diarrhea illness in Gainesville, Florida, where she interviewed mothers of children in five child care centers and presents a full set of mothers' rationales for treating diarrhea. I borrow extensively from Francis' list in the analysis below to show that people's treatment rationales, like their health behavior, are influenced by factors that fit into the *generalized determinants framework*—characteristics of the illness, patient, caretaker, household and region. Treatment rationales may also be influenced by patient or caretaker's social networks, prior knowledge or experience with the illness, recommendations from others, judgments about the evolution of the illness, knowledge of medicines, illness or treatment options, the behavior of the patient, and wealth of the caretaker. In the Gainesville study, mothers mentioned as reasons for administering a treatment a recommendation by a pediatrician or general practitioner, a recommendation by a mother or grandmother (Francis 1994).

Nature of the Illness

Concern about gravity and duration of an illness are often a reason for choosing the kind of treatment alternative to cure it. One mother, whose family had experienced giardia, took her child to the pediatrician for a stool culture because she was concerned that the child "was having it frequently and it was like for four days. It had a real strong odor to it and I was afraid it might be something . . . [maybe] giardia" which she considered to be more severe. In this case, the examination of stool at the hospital turned out negative. One mother was guided by the nature of the illness in her selection of treatment actions:

> I would use more Gatorade first [if a child had diarrhea]…. Then if it were severe, or two days worth of diarrhea, when I felt like they were really depleting their mineral supplies, then I would go to Pedialyte [because it] is more concentrated in minerals and vitamins than Gatorade." (Francis 1994:123)

Patient

The wishes, tastes, age and status of a patient may influence treatment choice. One mother mentioned that she uses Gatorade because her children do not like the taste of Pedialyte. Another mother uses Gatorade because "it's got some electrolytes in it, and they (her children) are losing electrolytes." Sometimes a medicine is chosen because it is thought to be only for a certain category of people. For a example, one mother thought that Pedialyte is mainly for infants less than one year old though it could be given to older children in case of severe diarrhea.

Another mother whose four-month-old baby was having diarrhea gave water between meals because "it helps wash the milk down . . . helps flush him out." She gave Gatorade to her older children if they were dehydrated. Another mother would not give the baby Gatorade but Pedialyte and only on a physician's recommendation. One mother gave Gatorade when her child had diarrhea because the child did not eat, and she had difficulty getting the child to drink and she felt that he needed "some kind of protein or something to keep him going" (Francis 1994:125).

Caregiver

Some rationales indicate that treatment is influenced by caregivers' thoughts, past experiences, wealth, cultural beliefs, and sometimes trial and error. For example, a woman who recommends water and "clear liquids," also said she gives 100% juices like apple juice but dilutes it to half strength because she feels that the more water she gets into the children the better. This also shows that mothers' ideas of what to give for treatment are both flexible and changeable to some extent. They can even give things that are contradictory to their beliefs if they believe that they will render some kind of help. For example, this mother gave Gatorade "even though (she said) it has sugar in it" because she thought it "helps to balance their (children's) electrolytes and stuff" (Francis 1994:119). Treatment is also influenced by trial and error. "I give them Gatorade, water, and juices. Kind of a mixture. Kind of like, whatever works on them" says one mother (Francis 1994:119). In other words, treatment is a process of testing or trial and error.

A mother recalled giving her child Pedialyte because her pediatrician recommended it. She used a drug store brand of electrolyte solution preferably because "it was cheaper and it was the same stuff." When her 11-month-old baby had loose stools with teething, she did nothing different because it lasted a day or two" (Francis 1994: 119). Similar rationales were given by mothers in the Bakoum area.

Thus, mothers may use or not use a particular treatment option for different reasons, and some of them may be conflicting. For example, some mothers use Gatorade because of the taste. Others do not use it because of its taste also. While some think that it is a good electrolyte replacement, others think it is not a strong electrolyte replacement for infants. One mother encourages apple juice with her five-year-old “because she (the child) could tolerate it” but used Pedialyte with her seven-month-old baby because she considered Pedialyte to be “electrolyte balanced and she was afraid of the kids losing electrolytes by having diarrhea” (Francis 1994:120).

Household

Household members often cooperate in caring and treating their sick members. However, kin and close relations are not always in agreement on the kind of treatment options to take. One mother’s case illustrates this situation. In her family, to give or not to give apple juice is a source of controversy. Her mother says apple juice gives diarrhea to children, but she and her husband feel that apple juice should be given to the children if they have diarrhea. She had used Pedialyte before (when her children were infants on formula) on the doctor’s suggestion but has not used it again since. She felt that she would use Pedialyte only in severe cases or as a nutritional supplement, and she expressed that she does not quite know what it is used for. One young mother reported that she did nothing during her daughter’s last four-day episode of diarrhea, and “it went away on its own.” However, her grandmother, who keeps the children during the week while she works, gave the child flour and water.

Family tradition can be a strong reason for choosing a treatment. A mother in Francis’ study, gives *Seven Up* to her children because it is “just a family thing suggested by her mother.” Another mother gave ginger ale to treat her child’s diarrhea because her mother always gave it to her when she was a child (Francis 1994:118). One mother keeps her two- and three-year olds off milk and all foods except soup and Gatorade on the advice of her mother. She said, "Normally I give everyone of my kids [Gatorade] when they get sick. They always say give them Gatorade. Because that is what they did with me so I had just picked up that habit and give them Gatorade." Thus, therapeutic behavior could just be a matter of habit or "family thing."

Social Networks

Close kin could be an influence in the choice of treatment alternatives. For example, a mother reported that when her five-year-old had diarrhea at infancy while teething, her Canadian mother "suggested rice water" and used it with the baby when she was babysitting.

One's network of friends are also a major influence. Many people tend to use what their friends use. One mother uses Gatorade because all her friends use it, and "basically, Gatorade is just about the top thing," according to one of the mothers whom Francis interviewed (Francis 1994).

Characteristics of Medicine

Most studies have not highlighted the characteristics of medicines as one of the key determinants of treatment choice. However, in situations where caretakers have to choose among multiple treatment options or medicines, they consider the various characteristics. This behavior comes through in many of the rationales collected by Francis on the treatment of diarrhea. Influential characteristics include taste of medicines, affordability, color, its physical nature, and source. One mother told Francis that she used Gatorade instead of Kool-Aid to treat her child's diarrhea because "Kool-Aid has too much sugar in it." She has used Ricelyte and Pedialyte and would use them again if she felt her children were loosing fluids or getting dehydrated. She thought that Gatorade tastes better than Ricelyte or Pedialyte and that “Gatorade seems to have more of a consistency . . . [the others] leave a taste” (Francis 1994:121). Another mother thought that Gatorade is “a little too strong . . . taste-wise for one thing, . . . I have heard also that it is not necessarily the best electrolyte replacement for an infant” (Francis 1994:119). One mother gives a lot of water and uses Gatorade because “it has a lot of minerals.”

Cost of treatment could also be a factor in choosing the means of treatment. When one mother was asked why she stopped using Pedialyte after her children reach about one year of age, she said, “For one thing, it is expensive. And for another thing . . . I always just thought Pedialyte was for babies.” She now uses Kool Aid or Gatorade because Gatorade “puts back in your body what [diarrhea] takes out” (Francis 1994:125).

One mother reported using Gatorade because it replaces electrolytes lost through diarrhea. She had tried Pedialyte when her children were infants, but they did not like it and would not drink it. She also felt that Pedialyte was two expensive, and as far as supplying fluids and replacing electrolytes was concerned, she felt that Gatorade did the same thing.

Many mothers expressed the notion that they gave Gatorade because they believed it replaced something that was being lost through diarrhea although they were not quite certain what the something was. Among the qualities that Gatorade is believed to have are minerals. One mother said it supplements. Another mother thought that Gatorade cures everything. On the other hand, most mothers used Pedialyte only if it was recommended by a physician.

Many mothers would give Pedialyte on a doctors' recommendation but would stop because children do not like the way it tastes and because Pedialyte is more expensive (Francis 1994) The duration of diarrhea could also influence the kind of treatment that was offered. One mother said if her child's diarrhea reached a third day, she was off to the store to get some Pedialyte.

Medicines Used During Diarrhea Episodes

One mother said she does not think medicine should be used for diarrhea because diarrhea has got to run its course. Another did not have to give medicine because "the food and the replacements [Gatorade, Pedialyte] worked." Some mothers said they would not give medicine to babies unless advised by a physician. This corroborates findings in Kom (Ryan 1995; Ryan and Mbeh 1996). A most common reason given by mothers for not giving medicine to young babies is that it may be too strong for them. For this reason, many opt to obtain some professional (mostly physician's) advice on what to do. One mother has never used medicine because she simply does not know what to give them. A mother gave Immodium AD to her 18-month-old (when she had a very bad diaper rash due to diarrhea) even though in her opinion, no health professional would have told her to do that, "but at the time, it seemed like the right thing to do. I mean she [the child] had a really [bad] rash."

Not all mothers are skeptical about the effects of medicine though. One mother of two children (three- and four-year-olds) said she has used a lot of medicine to treat her children's diarrhea. A mother of three said that she has been advised not to give medicines by her pediatrician but she would still give depending on "if they are having really bad cramping problems or if I don't think that they are sick, it is just a temporary thing or food related. I will go ahead and give them Immodium to get them through the day" (Francis 1994:142).

Some mothers who used medicine did so because they thought the episode was fairly long or/and severe. One mother used a certain type of medicine because it is the only thing she had in the house.

The importance of the study of treatment rationales is that they give us a good picture of what parents are taking into consideration as they go about treatment. From the rationales, we can have a better idea of the constraints, dilemmas and the context in which parents and caretakers take treatment decisions, as well as their knowledge about the illness and the various treatment options at their disposal.

We know that intercultural and intracultural differences exist in the approaches to the treatment of illnesses in general and diarrhea in particular. Despite the diversity, comparative analysis reveals important commonalities across cultures. Among the reasons for this are the shared regional systems of health care such as the humoral, Galenic, Ayurvedic, and Unani systems. Diarrhea management programs should not be limited to bringing about effective treatment of single episodes of diarrhea. They should assess and address the social, economic and environmental conditions that produce diarrhea

Figure 3-1 presents a general summary of treatment modalities available to lay people. In this figure, treatment modalities are divided into three major types: indigenous medicine, home management, and biomedical treatment. Indigenous medicine can be further divided into professional and nonprofessional sectors. The professionals of indigenous medicine include spiritual healers, herbalists and diviners. The nonprofessionals include traditional or indigenous home remedies. Professionals and nonprofessional practitioners of indigenous medicines both use teas, herbs, and rituals for treatment. Nonprofessionals also use pharmaceuticals products though some indigenous healers are beginning to use pharmaceutical products as well.

Home management involves all actions taken within the household by nonprofessionals after the illness is diagnosed. Often, home management efforts continue during and after professional help. Lay people at home use both home remedies and biomedical means to counter illness episodes. The home remedies include teas, herbs, and rituals while the biomedical means include pharmaceutical products from peddlers, pharmacies, hospitals, and stores.

Biomedical treatment is obtained mostly from professional practitioners, though increasingly, nonprofessionals, especially drug sellers, are also offering biomedical treatments and counseling. Professionals comprise of doctors and nurses while nonprofessionals are drug sellers, storekeepers, and some indigenous healer.

Table 3.2 shows the agreement of each "informant" (here countries) with answers given by the group. This is a first cut at consensus analysis of these data. We see that factors associated with diarrhea in some countries are very much like those of the entire set of 20 informants on average, while some countries (Highland Guatemala, for example) are very unlike the rest of the group.

We cannot make too much of these differences at this stage because (a) the data are extracted, export factor, from the literature; (b) some regions are more highly represented in the list of 20 societies; and (c) all the data, including the list of factors mentioned only once, are included in the matrix on which the analysis in Table 3.2 is based. Still, the differences shown in Table 3.2 make clear the potential utility for this kind of analysis in ferreting out similarities and differences across cultures in factors associated with any form of illness.

The similarity of any respondent to the group is the correlation of each respondents row in the respondent-by-factor matrix, with the overall vector of the frequencies of responses (column totals) for the matrix (Bogatti 1992:23).

Table 3.1 Free List of Diarrhea Treatments Sorted by Frequencies

	ITEM	FREQUENCY	RESP PCT	AVG RANK
1	HOME REMEDIES	18	90	4.778
2	PHARMACEUTICALS	15	75	5.333
3	CHANGE DIET	14	70	6.071
4	INDIGENOUS HEALER	10	50	4.100
5	ORS/ORT/SSS	10	50	6.000
6	NO TREATMENT	9	45	6.667
7	PHYSICIAN	8	40	6.250
8	HOSPITAL	7	35	3.857
9	PURGING	5	25	3.800
10	MASSAGE	4	20	1.750
11	SUSPEND BREASTFEEDING	3	15	6.667
12	SUSPEND MILK	3	15	4.667
13	WATER	3	15	9.333
14	COCA COLA	2	10	9.500
15	REDUCE WATER INTAKE	2	10	4.000
16	SUSPEND SUSPECTED FOODS	2	10	5.000
17	RICE WATER	2	10	2.000
18	CONTINUE BREASTFEEDING	2	10	8.000
19	COOL BEVERAGES	1	5	3.000
20	NO SALT TO BABIES	1	5	8.000
21	BUNDLING(WRAPPING UP)	1	5	3.000
22	SPRAYING WITH LIQUIDS	1	5	4.000
23	PUSH UP ON ROOF OF MOUTH	1	5	5.000
24	CONTINUE NORMAL FEEDING	1	5	9.000
25	PASS CHILD THRO' CORDS	1	5	6.000
26	RITUALS	1	5	5.000
27	BURNING MATCH STICKS	1	5	8.000
28	SPIRITUAL BLOWS	1	5	7.000
29	PLACE CATACHEU ASHES ONTO PALATE & PUSH UP	1	5	11.000
30	FIXING EGG OVER SCALP	1	5	12.000
31	GIVE FAT TO DRINK	1	5	2.000
32	PERFORM RITUALS	1	5	3.000
33	PASS CHILD & THRO TRENCH	1	5	9.000
34	DO NOT GIVE ORAL REHYDRATION	1	5	10.000
35	FLUIDS TREATMENT	1	5	12.000
36	FIELD REMEDIES	1	5	14.000
37	CHINESE DOCTOR	1	5	1.000
38	PO CHAI PILLS	1	5	2.000
39	NO ORS FOR TRANSITION DIARRHEA	1	5	3.000
40	REDUCE MILK	1	5	2.000
41	ALLOPATHIC PRACTITIONER	1	5	6.000
42	HOMEOPATHIC TREATMENT	1	5	7.000
43	TEAS	1	5	1.000
44	HAKIM'S MEDICINE	1	5	5.000
45	CEBADA WATER	1	5	5.000
46	MAJORAM ALCOHOL RUB	1	5	6.000
47	ALCOHOL RUB AND LIQUOR	1	5	7.000
48	YELLOW CORN WATER	1	5	8.000
49	LIMESTONE	1	5	10.000
50	BASIL	1	5	11.000
51	LEMONS IN CROSS UNDER CHILD'S BED	1	5	12.000
52	DUCK PASSED OVER CHILD & THROWN INTO WATER	1	5	13.000
53	SUBSTS. PASSED OVER CHILD & THROWN IN STREET	1	5	14.000
54	VALLEY	1	5	16.000
55	NEWBORN'S PLACENTA PASSED OVER CHILD'S BODY	1	5	17.000
56	CIGAR LIQUOR LEAF	1	5	18.000
57	CHOCOLATE	1	5	19.000
58	COCONUT WATER	1	5	20.000
59	RUDA	1	5	21.000
60	TINTA MORADA	1	5	22.000
61	CHILKE	1	5	23.000
62	MAHAHINGYATARD NAAM KAU	1	5	2.000
63	KWAD-YA	1	5	3.000
64	BRAT DIET	1	5	2.000

Table 3.1 Continued

```
 65                  PEDIALYTE         1         5     4.000
 66                   GATORADE         1         5     5.000
 67                  POPSICLES         1         5     6.000
 68                 GINGER ALE         1         5     7.000
 69                     JUICES         1         5     8.000
 70                   SEVEN UP         1         5    13.000
 71                   KOOL AID         1         5    14.000
 72                      JELLO         1         5    16.000
 73              SUSPEND FRUIT         1         5    19.000
 74             SUSPEND JUICES         1         5    20.000
 75              SUSPEND CANDY         1         5    21.000
 76              SUSPEND FIBER         1         5    22.000
 77       SUSPEND ACIDIC FOODS         1         5    23.000
 78              COFFEE LEAVES         1         5     7.000
 79              PAWPAW LEAVES         1         5     6.000
 80              COTTON LEAVES         1         5     7.000
 81                   CHARCOAL         1         5    10.000
 82              COCONUT ROOTS         1         5     1.000
 83          ROASTED PLANTAINS         1         5     5.000
------------------------------------------------- --------- ---------
                Total/Average:       184     9.200
```

Table 3.2 Correlation of Each Respondent with Group

```
                            CORR
                            ----
 1            GUATEMALA     0.80
 2           COSTA RICA     0.72
 3            MOZAMBIQUE    0.34
 4             HONDURAS     0.17
 5 NORTHERN PUNJAB (PA      0.36
 6       MASSAI (KENYA)     0.55
 7            NICARAGUA     0.65
 8     CHINESE HONGKONG     0.31
 9            SRI LANKA     0.52
10                INDIA     0.45
11           BANGLADESH     0.67
12 H-LAND GUATEMALA (S      0.12
13 HONDURAS(J.DECLERQU      0.72
14 THAILAND(BY SHAWYER      0.75
15 SUPHANBURI, THAILAN      0.75
16                  USA     0.29
17  MASSAKA (CAMEROON)      0.79
18 NYAMBAKA (CAMEROON)      0.72
19  ZOETELE (CAMEROON)      0.82
20      KOM (CAMEROON)      0.78
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Table 3.3 Summary of Diarrhea Treatments by Country

GUATEMALA	suspend breastfeeding Change diet Home remedies Indigenous Healer Pharmaceuticals No treatment Hospital
COSTA RICA	massage Pharmaceuticals Cool beverages Home Remedies Physician Indigenous Healer ORS/ORS/SSS No treatment
MOZAMBIQUE	Rice Water Home Remedy Hospital Give water Rituals Change diet Reduce water intake No salt to babies Continue normal feeding
RURAL ZIMBABWE	Home remedy pharmaceuticals ORS/ORT/SSS Enemas Hospital Indigenous Healer No treatment change diet Prayer
HONDURAS	massage Purging Bundling (wrapping up) spraying with liquids push up on roof of mouth suspend milk

Table 3.3 Continued

	Change diet
	continue breast feeding
NORTHEN PUNJAB (PAKISTAN)	indigenous Healer
	Physician
	Home Remedies
	massage
	Hakim's medicine
	Pass child thro' cords
	spiritual blows
	Burning match sticks
	Pass child & motherthro' trench
	Change diet
	place catacheu ashes onto palate & push up
	Fixing egg over scalp
MASSAI (KENYA)	Home Remedies
	Give fat to drink
	perform rituals
	stop food
	Purging
	ORS/ORT/SSS
	suspend milk
	continue breast feeding
	Change diet
	do not give oral rehydration
	stop breast feeding
	Fluids treatment
	field remedies
	pharmaceuticals
	Physician
NICARAGUA	massage
	Purging
	No treatment
	home remedies
	physician
	pharmaceuticals

Table 3.3 Continued

CHINESE HONGKONG	Chinese doctor Po chai pills pharmaceuticals ORS/ORT/SSS
SRI LANKA	Purging pharmaceuticals no ORS for transition diarrhea Home Remedies
INDIA	Reduce water intake Reduce milk change of diet Home remedies
BANGLADESH	ORS/ORT/SSS Physician indigenous Healer No treatment change of diet allopathic practitioner homeopathic treatment Home remedies
HIGHLAND GUATEMALA (Santa Maria de Jesus)	Teas Home Remedies Rice Water Coca cola Cebada water Majoram alcohol rub Acohol rub and liquour yellow corn water pharmaceuticals limestone basil lemons in a cross under child's bed

Table 3.3 Continued

	duck passed over child and thrown into water
	substances passed over child & thrown in street, water, valley
	newborn's placenta passed over child's body
	cigar in liquor leaf
	chocolate
	coconut water
	ruda
	tinta morada
	chilke
	ORS/ORT/SSS
HONDURAS (Julia Declerque et al.)	pharmaceuticals
	Home remedies
	ORS/ORT/SSS
THAILAND (by Shawyer et al.)	pharmaceuticals
	mahahingyatard naam kau
	Physician
	Change diet
	home remedies
	indigenous healer
Suphanburi, THAILAND (by Rauyajin et al.)	indigenous Healer
	No treatment
	kwad-ya
	pharmaceuticals
	Change diet
	home remedies
	Physician
	suspend breastfeeding
USA	suspend milk
	brat diet
	Change diet
	pedialyte
	Gatorade
	popsicles
	ginger ale
	juices
	water

Table 3.3 Continued

	Physician
	hospital
	Change diet
	seven up
	Kool Aid
	Coca cola
	Jello
	Home remedies
	pharmaceuticals
	suspend fruit
	suspend juices
	suspend candy
	suspend fiber
	suspend acidic foods
MASSAKA	Hospital
	pharmaceuticals
	ORS/ORT/SSS
	home remedies
	indigenous healer
	Change diet
	coffee leaves
NYAMBAKA	Hospital
	ORS/ORT/SSS
	pharmaceuticals
	indigenous healer
	Home remedies
	Pawpaw leaves
	Cotton leaves
	no treatment
	chang diet
	charcoal
ZOETELE	coconut roots
	Hospital
	Home remedies
	indigenous healer
	pharmaceuticals
	change diet
	ORS/ORT/SSS
	no treatment

Table 3.3 Continued

KOM	Change diet hospital ORS/ORT/SSS pharmaceuticals roasted plantains suspend suspected foods indigenous healer no treatment home remedies

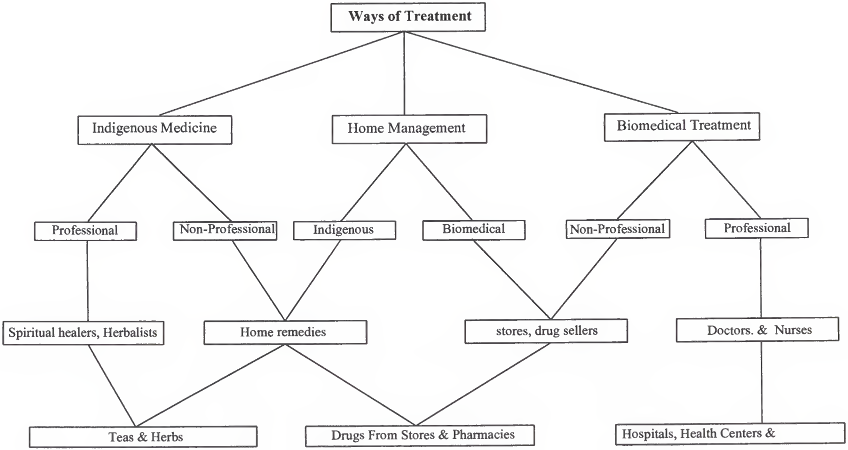

Figure 3.1 General summary of treatment modalities available to lay people.

CHAPTER 4
STUDY SITE AND METHODS

Introduction

This study was done in Kempong, Loumbou, and Goumbegeron. The three villages lie along a small road that runs from the Yaounde-Bertoua road through the Bakoum ethnic region in the eastern province of Cameroon. In this chapter, I describe the national, provincial, and local health environments, followed by a presentation of the research methods used for this study.

Cameroon

The geographic position of Cameroon within the tropics renders it diverse in climatic, physical features and vegetational and environmental resources (see Figure 4.1: location map of Cameroon). It also means that such conditions favor a variety of tropical diseases which strain the financial resources of the government and of the approximately 12 million inhabitants. The main illnesses in the country include malaria (the most prevalent), yellow fever, trypanosomiasis, tuberculosis, cholera, diarrhea schistosomiasis (bilharziasis), leprosy, onchocerciasis (river blindness), measles, diarrhea, typhoid, tetanus, whooping cough, general intestinal disorders (the second most responsible for infant mortality), several skin ailments and venereal diseases (Azevedo et al. 1991).

Eastern Province

The eastern province is located in the southeastern section of Cameroon. It has an area of about 108,900 Km2, about one quarter of the size of Cameroon. The province is sparsely populated with a total population ranging between 500,000 and 613,000 people, and a density of between 4.55 and 5.5 people/km2 (Azevedo et al. 1991; Mpol et al. 1994).

Administratively, the eastern province has four divisions, (Lom and Djerem, Haut Nyong, Kadey, and Boumba-Ngoke) 19 subdivisions and 12 districts. The province is inhabited by diverse ethnic groups which include the Fulani, Bantu/semi Bantu and pigmies who reside mostly in the forest area (Mpol et al. 1994).

The eastern province is one of the richest provinces in natural resources in Cameroon but it is poor in infrastructure. The development of the province has been constrained by many factors including inaccessibility, underpopulation, underexploitation of the natural resources, low incomes, low education levels, and the poor equipment at the socio-cultural level.

Since 1988, when the Cameroon government responded to the economic crisis by substantially cutting back on its expenses the economic conditions of the people in Cameroon have continued to be difficult. They became even worse after the salary cuts in 1990 and 1992, by about 70% and the devaluation of the CFA (the local currency) in January 1994 by 50%.

Access to the province is difficult, especially in the rainy season when the road becomes muddy and vehicles get stuck in the mud. The road that links the eastern province to the national capital, Yaounde, is an international road that links the Central African region to the rest of the world through the Douala international air and seaports. It is used heavily by heavy trucks transporting goods to and from the seaport in Douala.

The use of this road by a high number of long-distance truck drivers has an impact on the economic, health and social life of the area. Researchers have found that long distance truck drivers can play a major role in spreading sexually transmitted diseases including HIV (Sigh and Malaviya 1994). In the Eastern province, most of the roads frequented by timber-truck drivers are corridors of sexually transmitted diseases. The economic depression and the scarcity of income generating activities has forced many women to turn to prostitution, to augment household incomes. Their most sought-after clients are frequently heavy-truck drivers who have disposable income to offer.

Health Care

A good hospital was constructed and equipped in Bertoua, the capital city of the province. The population, however, still consider themselves not well served. They have to cover long distances to reach the nearest health facilities and the facilities lack medicines and basic medical supplies.

Access to Biomedical Health Care

Access to modern health care facilities in general is a major problem in the province. Access to modern health care services could be examined in different ways. For example, physical access, financial access, linguistic access, and cultural access. Under any of these considerations, access to biomedical health care services in the area is difficult for the Bakoum population.

(a) Physical access. Physical access to biomedical health care facilities is difficult because such facilities are few and far between. Mpol et al. (1994) report that the catchment area of a health facility is very extensive, about 4km on average in the urban areas and about 17.4km in the rural areas. However, it is easy to find localities with distances to the nearest health facility ranging between 30 and 40km. The situation is made worse by the poor state of the roads and the lack of transportation. In many areas, going to the nearest hospital could mean a day's journey (van der Geest 1991). Malnutrition is common, and illnesses like kwashiorkor, especially in the rural areas, are the clear evidence.

There are public, lay and missionary health facilities. At the provincial level the number of people per health facility is about 3191, compared to 5000 per facility at the national level. However, these facilities are not equally distributed among administrative divisions or between the rural and urban areas in the province. In the Haut Nyong, where the research was done, there are 1661 people to a health facility in the urban area, and 2850 people to a facility in the rural area. The ratio of people per facility in the division is 2491 per facility (World Bank report on the situation of poverty in the eastern province, 1994, citing the provincial Delegation of Health).

(b) Financial access. Financial problems related to health care seeking are examined in detail in chapter three and seven. Financial access to health care as an impediment to health seeking is a serious and widely reported problem across the world. In the Bakoum area, it is acute and has been made worse by the current economic depression in the country. Rural Bakoum farmers are experiencing the effect of a drop in the prices of their agricultural products, especially cocoa and coffee. Their purchasing power has reduced as a consequence. Interviews with health personnel indicate that attendance at health facilities fluctuate seasonally. During the cocoa harvest season when there is more money available, more people visit health facilities for treatment. In other words, there are times when people can be too poor "to afford an illness" as they can be too busy in some seasons to have time to be ill (Sauerborn et al. 1996).

This knowledge is being utilized by pharmaceutical vendors (hawkers) to distribute their medicines. They know in what seasons people have money and what seasons they do not. In the poor seasons, they sell pharmaceuticals on credit and return in the rich season, to collect the money and sell more medicines. Some reduce their selling activities in the poor season and intensify them again in the rich season.

(c) Cultural access. Medicine and medical systems are products of cultural systems. Some authors have mentioned that access to health care is influenced by the culture. They argue that since modern health care is culturally different from that of the cultures of developing countries, people in the developing world will not accept alternative treatment options offered by the Western biomedical system. Over the years however, this trend of thought has changed. It has been observed that people would use any health system they can afford to solve their health problems if they believe it to be effective. However, one difficulty in accessing the biomedical health system in these regions is language.

(d) Linguistic access. Cameroon has more than 230 languages spoken by the different ethnic groups in the country. Officially, biomedical health services in Cameroon operate in French and English, the official languages. Many people, especially in the rural areas, can only express themselves well in one of the local languages. Many health seekers who speak neither French nor English, find it difficult to express their health problems to health professionals.

Shortage of Basic Necessities

According to a World Bank Report (1994), the lack of first aid medicines in the provincial hospitals of Cameroon is so acute that patients die in the reception room (salle d'acceuil) right in front of nurses. Some nurses even seek to be transferred from the emergency room to other services so as to stop witnessing such incidents. Women die during deliveries for lack of necessary provisions. One nurse reported that he had to sterilize and reuse a single pair of gloves repeatedly for multiple deliveries for at least one month before discarding them. The lack of basic necessities has turned health personnel in public hospitals and health centers into prescription distributors. According to a respondent in Abong Mbang:

> the lack of basic necessities for First Aid in public hospitals automatically leads to a distribution of prescriptions: "the only thing that is given at the hospital after consultation is a prescription. Not even a single tablet can no longer be given you for free. (World Bank Report 1994:38)

In a report on the development of the Eastern province for the period 1982-1992, the provincial delegation of the ministry of planning (MINPAT) presented the health situation in the province in the following terms, which I find to be valid today (in 1999). The report indicates,

> In 1985, a national pharmaceutical bureau was created with a branch in Bertoua (Eastern provincial capital) for buying and distributing essential drugs. The bureau had an autonomous budget of 2 billion CFA francs, (about $3.3 million ($1= about 600cfa)). In 1989, 100 million cfa of this sum was allocated for the provision of the eastern province. Unfortunately, medicines can no longer be bought for lack of financial liquidity, since 1988.
>
> In order to provide part of the medical needs in rural areas, the government launched the experimental phase of the Bamako initiative in the Haut-Nyong division in 1991. This initiative consists on the one hand the provision of health centers with medicines, permitting the possibility of self financing and management from financial proceeds generated by the sales of medicines.

> Nevertheless, curative treatment in the most health centers are no longer possible because of a chronic lack of first order medicines (first aid medicines). The nurse only makes his diagnosis and gives a medical prescription to the patient who has to struggle on his own thereafter to purchase the medicines. It is therefore not surprising that in such conditions, competing distributing channels consisting mostly of ambulant vendors of medicines, most often expired should be growing. The main problem to resolve now is the follow-up or not of free medical treatment in public health facilities. (originally cited in French by Mpol et al. 1994)

Study Site--The Villages

There are many Bakoum villages scattered across the Eastern province. These include Goumbegeron, Loumbou, Kempong, Koleshong, Zoupita, Paki, Mindim, Kouenne, Ngoulolo, Dimako, Ngoulambelo, Batala, and Lodjio where one dialect of Bakoum is spoken. Mbetem, Semouan, Petit Pol and Grand Pol are also Bakoum-speaking villages, but each has its own different dialect of the Bakoum language. Speakers of the different dialects comprehend each other with greater or lesser difficulty depending on how far apart their villages (and dialects) are. The Bakoum villages involved in this study are Kempong, Loumbou and Goumbegeron. These three villages are located along and on both sides of a feeder road, linking the villages to the Yaounde-Bertoua main road in the Doume sub-division in Haute Nyong division, eastern province (see Figure 4.2). The social and physical characteristics of the three villages are similar. Goumbegeron is the biggest of the three, and is the seat of the paramount local chief. Kempong and Loumbou have subchiefs. Chieftainship in these villages was introduced by French colonialists.

Selection of Communities

These three communities form the immediate catchment area for the government health clinic. Establishing ourselves was facilitated by the fact that one of our research assistants had worked there the previous month and the inhabitants of the villages had indicated an interest in the research.

Oral history indicates that the settlement of the Bakoum people at their present location was influenced by wars, ecological factors and political decisions. The people of Kempong village, for example, came to settle near the Yaounde-Bertoua road after a number of wars with the people of Dimako. They then had to move again because of political decisions by the state government and because the river Doume near which they settled was constantly flooding into their homes. One of the oldest informants in the village, who is also a son of one of the late chiefs, of Kempong describes the situation in the following interview excerpt [original in French]:

> Ndengue: So, when the people of Dimako realized that we were still there (nearby), they prepared to wage war against us. One of our aunts (who was living there at Dimako) came and told us that, you are there, Dimako is preparing , for the second time to come and finish you. We escaped and came and settled in a village called Lembo, Kempong one.
>
> George: So this village is called Lembo?
>
> Ndengue: Lembo
>
> George: Lembo, Kempong one
>
> Ndengue: mhm. When the whites came they constructed this road to Batouri. The sub-divisional prefect asked us to leave, since we were living in the bush, and come and settle by the road. So we abandoned Kempong one to come and live in Kempong two village, near the river doume.
>
> George: Aaa, OK
>
> Ndengue: Mhm, when my father became chief, he saw that water was threatening us (flood water from river doume). When it rained, water entered houses all over. And so the chief asked us to leave and settle where we are now, Kempong three.

Population

The population of the villages in 1995, according to figures from the health center at Goumbegeron is shown in Table 4.1.

The Arrival Of Biomedical Facilities

Oral history links the arrival of biomedicine in the eastern province to a Dr Jamot. He is said to have been the first physician to arrive in the eastern province during the colonial era. Jamot had his hospital at Ayos, near Yaounde, about a 3- to 4-hour drive from Kempong. Old informants in the village remember that Jamot, while established in Ayos, used to go to Doume and even to Loumbou to treat patients of leprosy, sleeping sickness, pian and other illnesses. He was in the eastern province in the 1930s. The "chef de canton" at the time resided in Loumbou. After Jamot came Dr. Doubloquet, also a French medical doctor like Jamot.

The construction of the current health center in Goumbegeron is linked to the late Mayor of Doume who was from Goumbegeron. He was a very powerful man who had a lot of influence in Yaounde through the men of influence in powerful positions that he knew.

Economic Activities

The main economic activities are timber exploitation, especially by commercial timber companies, subsistence agriculture, cocoa farming and hunting. Food crops grown locally include cassava, groundnuts, coco-yams, corn, manioc, palm wine-tapping and processing, bananas and plantains; raising of livestock (pigs, goats, fowls dogs, etc.) for domestic consumption. Fishing is also carried out in the river Doume.

Ecological Characteristics

The Bakoum ethnic group is in Cameroon's tropical forest area. The area is marshy, located on the flood plain of the river Doume. In the rainy season, the river Doume floods and the rich plant growth and pools of water bring about an increase in the population of mosquitoes. As noted earlier, the people had to move from the banks of the river to avoid the annual invasions of the village by the flooded river. It is this river that is used for fishing drinking, bathing, and other activities. Many types of diseases are said to be caused by activities linked to the river. Water from the river is known to be dirty and to cause diarrhea. There are standing pools of water and marshes also known to harbor mosquitoes that cause malaria all year round. The river water is also said to cause scabies, itching and other skin diseases. As one informant put it,

> Mele: I think it is mosquitoes. It's mosquitoes which cause us fever. We have too many mosquitoes here.
>
> K: Throughout the year, is there a period when there are no mosquitoes?
>
> Mele Richard: No, we are surrounded by swamps, so there can be no time without mosquitoes. In the dry season as in the wet season.

Elderly Women and Health Care

From our observations, and interviews, it was clear that women, and especially elderly women, play a major role in the prevention and treatment of both infantile and adult illnesses in the village. Most health problems are referred to them for treatment or counsel. Common children's illnesses like diarrhea and cough seem to be their specialty. They are also very involved in reproductive problems. Frequently, they are called upon to assist in the deliveries at home and to treat women's illnesses like "ver de femme or "women's worm." They use tree barks and herbs from farms and bushes. Many people reported that they go to the hospital or health center only if the elderly women indicate that they cannot treat the illness. We noted that most of the illnesses that people took to the hospital were either urgent or chronic.

Elderly women (referred to respectfully in the village as "les grand-meres" or grandmothers) are also known as the protectors of the village from evil forces. Their opinion and consent is sought before any major decision concerning the village is taken. It is said that a negative spirit cannot survive in the village if they do not permit it. There are big trees surrounding the village, which are said to make incarnate the mystic forces or powers of the grandmothers. These trees cannot be cut down without negotiating with the grandmothers to obtain their consent.

The Problem of Water in Kempong, Goumbegeron, and Loumbou

The problem of water here is crucial. It is a problem, by the way, not peculiar to this area alone but one that faces the entire eastern province and many other areas of Cameroon. River Doume, which crosses the village is the principal source of potable water. But just the color of the water indicates that it is not good for domestic consumption at all. The water is dark brown with a lot of dirt in it. It is worse in the rainy season when the river floods and all types of dirt are washed into the river. This is the water that is drunk in the village and used for cooking. People are aware of the dirt in this water and of the negative health consequences of drinking and using it for cooking. In fact many of our informants reported that most of the common illnesses in the village (like scabies and diarrhea) are caused by the consumption of this water. They seem to feel powerless and resigned to the situation.

However, this problem would not have been present had the pipe-borne water system built by Scanwater been working. Scanwater, built a pipe-borne water system with taps for collective use at designated points in the three villages. For some time, the village had no lack of clean water until when the main road that runs through the village to a timber company site (CEBEC) was being repaired. During the repair exercise, one of the pipes carrying the water was destroyed. The villagers got together and made various efforts to have their water system repaired. They took the matter to the sub prefect of Doume, in charge of the area. So far, the villagers have not had any response, despite the fact that they had contributed gas or fuel money for the sub prefect's transportation to go and talk to the CEBEC director. (Note that the sub prefects in Cameroon are provided with state vehicles and gas to facilitate their work.)

It is worth mentioning, too, that the people are now using water from dug out wells in the village. We visited one, located about a kilometer from the main Loumbou village. The well was dug as a private initiative by one of the villagers, but according to its owner, it already serves many people in the village. This well, however, is dirty. At the time of our visit, the water looked soapy. There were actually two wells. One was for the supply of drinking water and the other was for bathing, laundry and general cleaning. The well for drinking water drains into the bigger well that is used for bathing and laundry. According to the owner of the wells, another well in the main village is even worse than his because pigs also drink from it. The village is expecting some help with the water system from Plan International.

Infrastructure

Health Care Facilities

People at the research site seek medical and health care services from both biomedical (formal and informal) and indigenous sources. The problem here is not a lack of western style health infrastructure but that the infrastructure is not functional. Two health centers in Petit Pol and Goumbegeron owned and run by the government are supposed to serve the villages. Goumbegeron is an *integrated health center*. All the villages (Petit Pol, Goubegeron, Kempong and Loumbou) are within walking distance from each other, but Petit Pol which is the farthest from the other three and has a different language or dialect from Bakoum is not considered a Bakoum village. Although health centers are well constructed and look beautiful, especially that of Goubegeron, they are not frequented by local inhabitants because these centers have no medicines or equipment. Goumbegeron is staffed by an *assistant nurse* while Petit Pol has a *nurses aide*. Patients who can afford to go to the health center report a sense of frustration when they are given a prescription of medicines that they cannot buy locally. Medicines are available for purchase in Bertoua, the regional town, but reaching Bertoua can take up to a whole day by commercial vehicle. Most people cannot afford the trip. Those who can afford it would rather go to a hospital or health clinic where medicines are available, especially to the Catholic mission heath center at Doume, the sub-divisional headquarters, or to Petit Pol. The Catholic health center called "chez les soeurs," (the sisters' house) is also popular because unlike the government hospital nearby it is said to have a better "acceuil," or human touch with patients and it sells medicines at prices and quantities that people can afford. One thing that discourages some people from going to the government hospital is the practice of charging a consultation fee before service. The Catholic health center does not charge such fees.

The health center at Goumbegeron, which was better staffed than the one at Petit Pol, was in serious disrepair at the time of my study. The roof leaked, many beds had no mattresses, room floors were littered with goat dung, and the paint was fading from the weather. There was generally no equipment and the rooms were dusty and dirty. When we arrived, the surroundings of the health center were cleared of grass. However, we were told that often, the grass grew high around the buildings up to the walls until the health center nurse found a way to coax local residents to clear it down.

By the time we left, however, the health center was being renovated, we were told, with financial assistance from the Italian government.

Residents who can afford it (or when they can afford it) also seek health care services outside the village from public and private hospitals in Doume, Dimako, and Bertoua.

Transportation

Most people cannot afford the cost of transportation to these health facilities in Dimako and Bertoua ; let alone the cost of medication and living expenses in these towns. Dimako is a small town, about 30 minutes drive from Loumbou. The main activity in the town is timber exploitation and processing. It has a factory for the production of plywood. A “bush taxi” from Loumbou to Dimako charges about 500cfa. Doume is about one hour walking distance from Loumbou.

Trekking is the most common means of travel or transportation. Access to Loumbou and to the eastern province in general is very difficult from the capital city

Yaounde. Long distances are covered by public transportation using buses and mini-buses or vans. There is electricity in the three villages but no telecommunication facilities. In the rainy season (especially if the roads were not graded during the preceding dry season) it is difficult to go through the network of dirt roads that connect the villages. The Cameroon administration traditionally maintains dirt roads during the dry season when it is more convenient to do so. But with the recent crisis, and sometimes because of negligence or corruption, road grading is a low priority.

Indigenous Medicine

Indigenous healing is widely practiced. All adults know some indigenous healing methods or medicines. There are Indigenous healers and medicine vendors in the villages. The tendency for most people, is to administer indigenous healing first and if the ailment continues, they seek other methods of treatment. We counted about three pharmaceutical vendors in the village, one in Loumbou and two in Goumbegeron.

Indigenous Healers

Women are the most renowned indigenous healers. This was indicated right on at the beginning of fieldwork. On arrival in Kempong, we met with the chief and presented the reasons and goals of our visit as being to learn how Bakoum people treat children's illnesses. He promptly and summarily told us that: "Yes, the women will tell you that."

Health Hazards

The common health hazards in this area include absence of good drinking water, presence of domestic animals like goats, and pigs and fowls which roam freely. They enter houses and can easily eat from cooking utensils. Also important is the absence of good toilets or latrines. All these lead to *oral- fecal* problems. The environment is very favorable to the breeding of mosquitoes. There are lots of nearby marshes and the area is in a forest zone.

Other Infrastructure

There are two government primary schools in Goumbegeron and Loumbou. Each of the villages has a Catholic church. Other churches like Bahai are beginning to gain a foothold and have active members, but these are not many and have less influence.

As mentioned earlier, at Dimako, there is a timber factory with a saw mill where plywood and plank are produced. Some of Bakoum people have worked or are working here. Others work in the government offices in administrative towns like Doume, Abong Mbang, and Bertoua.

Potable Water Supply

The absence of running water is a major and widespread problem in the eastern province as a whole. In the provincial capital itself, water shortages often went for weeks. Dirty water was considered responsible for some of the province's health problems like diarrhea and skin diseases. Potable water is not available in homes in the study area (Goumbegeron, Kempong and Loumbou) though (as above) there was a broken water system in place, which was out of use for many months.

Common food crops include manioc, vegetables, plantains, tubers, and beans. Cocoa is the major cash crop. Food shortages between harvests are experienced. Bakoum is the common language and people are bilingual in French.

Research Methods

Fieldwork was carried out in the Bakoum area between October and November 1997. Two anthropology graduate students (Francis Keubou and Roger Dongmo) from the University of Yaounde assisted me in collecting data. Prior to our arrival at the sites, Roger Dongmo had already spent the previous month carrying out a study on fertility in the area, and I had visited him and his wife as the field supervisor of the research project. Thus, we were not complete strangers on my arrival and this helped facilitate our acceptance and settling in. Roger Dongmo had to return to Yaounde after one week, and I continued with Francis Keubou. We set up our base in Kempong. From Kempong, we traveled each day to the other villages to meet and talk to people, returning in the evenings.

During one month of intensive data collection, we talked to more than 100 informants, walked through the villages daily, interviewed, tape recorded interviews, observed behaviors, and recorded what we heard and saw. We collected free lists of illnesses, their causes, symptoms, and treatments. We noted information on the history of Loumbou and Kempong and the Bakoum ethnic group in general. We also collected demographic information on age, sex, level of education, marriage, religion, and occupation from the people interviewed.

We began by conducting a census of people in the villages of Kempong and Loumbou, including data on household composition. The census also served as a quick and relatively easy way to introduce ourselves to households and to the society as a whole.

We used interview guides, for structured and semi-structured interviews. In-depth interviews were used to collect data on the history of the group. We also used structured interviews to collect data on actual cases of diarrhea. We noted the symptoms reported by informants, their ideas and perspectives about the illness, the foods fed or forbidden to sick children because of the illness, the treatments given, the justifications for such treatments and informants' expectations for the efficacy of the treatments.

Data Collection

Data for this study comes from literature review and from the fieldwork. Here I present the methods for both approaches beginning with methods for the literature review.

Methods for Extracting Data from the Literature

There is a lot of literature on diarrhea. For this study, only published papers with ethnographic data depicting health beliefs, emic perspectives, and health behavior related to diarrhea were selected. I treated each paper as an informant on the culture reported in the study. I read through each selected paper, noting the culture or locality where the study was done, and extracted information on diarrhea, including beliefs about causes, symptoms and treatments. This information was arranged in lists. This resulted in two lists for each culture or paper: one for causes and one for treatments. The lists are similar to the free lists that are commonly used in anthropology for gathering and analyzing data on cultural domains. The lists were then analyzed using anthropac software.

I reviewed studies of diarrhea done on 24 cultures in the following countries: Haiti, Ecuador, Guatemala, Costa Rica, Nicaragua, Bangladesh, North India, Sri Lanka, Pakistan, Mozambique, Zimbabwe, Ethiopia (Woylayta), Swaziland, USA, Cameroon, Hong Kong, Kenya (Macharus district), South India (Vellore), and Thailand. In Cameroon, diarrhea studies in four cultures (Kom, in the northwest province, Massaka, in the southwest, Nyambaka, in the Adamaoua province and Zoetele in the south province) were examined. I selected studies that report on folk perceptions. From each study, I picked out reported findings on emic causes of diarrhea, its symptoms, prevention and treatments. Here data is presented only on causes and treatments. The units of analysis are cultures not the informant papers.

Limitations of Using Published Papers

One weakness with using data from published papers for analysis is that independent studies are carried out at different times with different intentions. Investigations not only focus on different aspects of an illness but are designed to answer different questions and use different research methods. For example, some studies use surveys with structured questions while others use open ended questions. It is difficult to know whether a variable that is not mentioned in a study was unimportant in the society studied or was simply not measured. For example, some studies focus on home treatments of diarrhea and may not mention hospitals or physicians as treatment alternatives. This may not be because cases of diarrhea are not taken to the physician, but rather because the study focused on the medications that were used to treat diarrhea or on home treatment. Like informants, some studies are thoroughly detailed on a subject with long lists of behaviors while some do not mention a subject at all or do so only superficially.

Methods for Collecting Ethnographic Data

Data were collected from a convenience sample of over 100 adult women and men (mostly parents) who were available and willing to be interviewed. From this main sample, I used 35 of the tape-recorded and transcribed interviews to extract, analyze and compare people's beliefs and perceptions about causes, symptoms and treatments of diarrhea and other illnesses in the Bakoum area. These data are summarized in the tables and figures of Chapter 6. We also interviewed and carried out a daily follow up of 15 on-going cases of children's diarrhea. From a methodological perspective, this procedure helped in cross-checking information from parents reports. It also helped in tracking actual treatment behavior.

Interviews on past illness episodes were tape recorded and ongoing episodes of diarrhea were recorded and observed. We also noted the sources of potable water and the treatment alternatives that people use when their children have diarrhea. Demographic data were collected through a census. All interviews were done in French.Respondents didn't mind being tape recorded. However, our tape recorders sometimes failed us and when that happened we wrote down notes.

Kinds of Data Collected

We collected four kinds of data: (1) ethnographic interviews on childhood illnesses (childhood illness interviews), (2) ethnographic interviews with health providers (provider interviews), (3) past completed diarrhea episodes, and (4) on-going diarrhea episodes.

Ethnographic Interviews on Childhood Illnesses

We interviewed all those who had time to answer our questions. We asked parents to give us narratives about their experience with the last diarrhea episode their child had. We probed for descriptions of parents' health behavior during diarrhea episodes and their reasons for adopting such strategies. We asked for their beliefs about the causes of various children's illnesses, their knowledge and awareness of illness symptoms, and the treatment options for the illnesses they mentioned.

Our research was at a very busy time in the village, when people either harvesting or tending their farms. Women, especially, were preparing to harvest groundnuts by making baskets. It was difficult to find a woman who was idle and many times we had to interview women as they went about their household chores of child feeding, cooking, food processing, house cleaning, and so on.

Ethnographic Interviews of Health Providers

Health providers here included nurses, healers, local mothers who were specialist in certain illnesses and who were frequently contacted or consulted with children's illness problems. The healers and specialist mothers were referred to us in the community, mostly by people who knew them and who had been treated by them. With the health official at the health center, we asked questions about the general attendance at his health center by the local population for deliveries, and children's illnesses and other problems. We inquired about the kinds of problems he faced as a health provider in the region and what he thought were the best ways to solve them.

Traditional doctors are highly frequented. We also engaged them in face to face interviews on their knowledge of illnesses in the community, treatments and beliefs about causes of illness and their symptoms.

Past Completed Diarrhea Episodes

We interviewed eight parents whose children had experienced recent cases of diarrhea within two weeks of the interview. This was also a convenience sample. We used in-depth ethnographic interviews where we asked about behaviors, characteristics of illness, perceptions of causes, justification of behavior.

On-Going Diarrhea Episodes

We interviewed 15 parents of children with on-going cases of diarrhea. We identified and followed up all the cases of diarrhea in the village during a four-week period in October and November 1997. Sick children had to be five years old or less to be included in the sample. After initially identifying illness, we went back everyday to visit the sick child and record characteristics of the illness episode over the last 24 hours. This included what the mother did for the child, the signs and symptoms of the illness, and mother's justification of her treatment behavior. The information was recorded in a data collection sheet. The advantage of this procedure is that it reduces recall time, gives a full picture of the sequence, overlapping treatment behavior, and cause effect—what comes prior to behavior.

Criteria Elicitation

Gladwin (1989) recommends two ways of eliciting decision criteria from informants: the direct and indirect methods. One of the approaches is to ask the informant "why" he or she does or does not or did or did not "X-activity." The interviewer is advised to find out why person-1 did "X" and person-2 did Y?

We asked questions using "why" as recommended in this approach and many informants told us that they treated their children's diarrhea at home or using traditional medicine because they had no financial means. We wondered whether that was the real reason or whether it was a rationalized justification made after the fact. Gladwin warns researchers that informants may report things that they did not do in order to impress or out of their own expectations for appropriate behavior. We noticed that many informants assumed that we were professionals in biomedicine and that we expected them to treat their children at the health centers or hospitals. So, some people were quick to justify treating their children using the traditional means. We also noticed that some informants, once the "why" approach of questioning is used, feel they must answer defensively, that they must give an acceptable, wise answer even if it is not what actually happened. They sounded like our asking them why, meant we thought that they did something wrong thing by not treating their child at the hospital. By contrast, when the answer wass that the child was treated at the hospital, it was not followed by a justification.

Such answers cannot be used to build a model of how people treat children's diarrhea. We had to adapt Gladwin's approach by coming up with ways of rewording the questions so as to avoid this problem. For example, we would ask: "did you take your child to any person?" "Did you use any other treatment?" "If you had to treat your child for diarrhea again, will you use the same kind of medicine or the same person or the hospital?" This approach produced better results, in my judgements.

Conclusion

In this chapter, I have presented the Bakoum area in the context of the eastern province and Cameroon. The chapter shows the various health care problems in the area, including problems of access to modern health care services, limited health facilities, shortage of medicines and medical supplies and a functional water supply system. The research methods used in the collection of data and the background under which data were collected and against which the findings can be interpreted and understood are also presented.

Table 4.1 Population of Goubegeron, Kempong, and Loumbou in 1995.
(Source: The Health Center at Goumbegeron)

Village	Population
Goumbegeron	1424
Kempong	315
Loumbou	1141

Table 4.2 Number of People Per Health Facility in the Province.

Type of health facility	Hospital	Health center	CSE	Pharmacy	Others
Population health facility	28.805	41, 239	6619	28216	15 317

Source: Delegation Proviciale de la Sante, cited by the World Bank report (1994) on poverty in the Eastern province.

Table 4.3 Ratio of Health Personnel to Population

Type of Personnel	Medical Doctors	Surgeons	Dentists	Pharmacists	Dieticians	Pediatrician
Number	21	3	1	1	7	1
Population	25 529	178,703	536,109	76,587	536,109	539,109

Source: Service Provinciale de la Statistique de la delagation provinciale de l'Est, cite par RADEF in Etude de genre Analyse regionale SNV. Province de l'Est; and cited in the world Bank report on poverty in the Eastern province (1994)

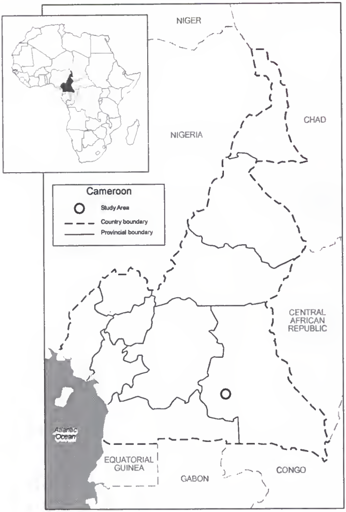

Figure 4-1 Location map of Cameroon

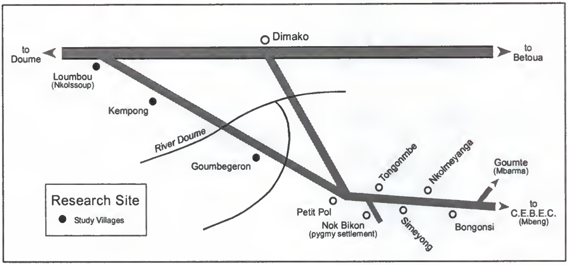

Figure 4.2 Study Villages [Loumbou, Kempong, Goumbegeron]

CHAPTER 5

MACRO LEVEL FORCES AFFECTING HEALTH CARE: THE SOCIAL AND POLITICAL ECONOMY OF HEALTH DELIVERY IN CAMEROON

Introduction

It is highly recognized that Health care services and delivery in developing countries operate under the influence of multiple factors, (Wanyange 1993; Nyamongo 1998; Ogbu et al. 1992). Despite this recognition, however, some studies have looked at health issues as influenced only by national factors. According to Ogbu et al. (1992:615) for example, health care delivery is influenced principally by national factors like the "level of public spending, the expenditure mix (i.e., salaries, drugs, supplies), the composition of the health infrastructure (hospitals, clinics and health posts), community efforts, and the availability of private health care."

In this chapter I show that policies and activities initiated at different socio-political levels and which may appear unrelated to health care can affect the provision of health services and access to health care services at household level. These forces include international policies, (i.e., policies determined at international level and recommended to governments for adoption) and national factors, like health administration, health and economic infrastructure, and national budgetary decisions. These factors affect the ability of people to assure health care for themselves and their families, and for governments to provide health services and infrastructure for their populations. The issues are discussed under two major headings: national and international

I use the multilevel approach to analyze the situation (van der Geest et al. 1990) Two factors make this approach appropriate for the analysis here. Firstly, the all embracing role of national governments in development programs and other sectors of national life and secondly, increasing globalization, characterized by interaction and interdependence of governments and international organizations which makes it possible for activities at local level to be influenced both by national and international forces. The multilevel approach sees issues at various levels as linked to one another and considers all linkages including vertical, horizontal and time linkages. The approach has been used in many studies. For example, Nigel Rice et al. (1998) used it to examine the influence of household membership and area of residence on individual drinking behavior in England. Here, I focus on the vertical linkages in the analysis of the political ecology of health in Cameroon (van der Geest et al. 1990).

There are two major conduits by which macro-level forces affect health care choices at the individual level. Macro-level forces affect the quantity and quality of health care options available to caregivers. Macro level forces also affect the availability of resources (e.g., time and money) in the household that can be dedicated to health care. Through the multi-level approach, it is possible to show, for example, that the people's way of reacting to diarrhea at village level in Goumbegeron (a lower level) is linked to political, health, and economic decisions taken at the capital city in Yaounde (a higher level) which may, in turn, be linked to policies adopted at the international level (a much higher level of operation). The mechanism through which these effects flow are both public and private.

National Factors

In this section I present the organization of health in Cameroon. I also present some key aspects of health care, showing how actions and decisions taken at national level affect health at village and household level. The section starts with a discussion of the role of government in health delivery.

Governments

As part of the world system, governments negotiate with other governments and international organizations for financial assistance and loans. They enter lateral and multilateral agreements and participate in adopting policies at international and national levels which affect the lives of people at household and individual levels. Concerning health at the national level, this is administered by the ministry of public health (MPH).

Public Health Administration.

The structure of public health administration in Cameroon is highly hierarchical and organized to correspond to the political and administrative setup of the country. There are both central and peripheral structures. It is comprised of the Ministry of Public Health (MPH) and its constituent directorates. The MPH administers health workers and personnel, designs and executes health policies through its designated organs, and carries out vaccination campaigns. It is headed by the minister of public health.

Administratively, the country has 10 provinces, each of which is divided into divisions or departments. The divisions themselves split into subdivisions. Each province has a provincial delegation of health and a provincial hospital. It is supposed to be better equipped and better manned than the rest of the public hospitals in the province. Health problems that cannot be solved in the lower hospitals (divisional and subdivisional hospitals) are referred to the provincial hospital. The divisional hospitals are right below the provincial hospitals in hierarchy. They cater to problems at the divisional level. Sub-divisional hospitals take care of health problems in the subdivision, especially those that cannot be solved at the lower health units. Under the subdivisional hospitals are integrated health centers which take care of the health districts. Below the health centers are the health posts.

There are two reference hospitals in the country—one in Yaounde, the political capital, and the other in Douala, the economic capital. Health facilities at the higher levels are better equipped and have more qualified personnel than the ones at lower levels, the health post having the least qualified staff. The two reference hospitals have the most sophisticated medical equipment and the most qualified medical specialists in the country.

Although lower level health facilities are expected to refer difficult cases up the curative hierarchy, in practice, this is not always possible or easy because of structural and infrastructural reasons. Telephones, roads, and ambulances which could facilitate communication and transportation between health facilities are not always operational or functional. The result is that many of the lower facilities are practically cut off from the hierarchy. Sometimes, even when they are referred, patients may not be able to go to the health facility for reasons which may include lack of transportation and money or the absence of a place to live in town. Very often, health seekers do not follow the established hierarchy of health facilities. They often skip facilities of the lower rungs since those often lack drugs or if they feel that the illness at hand is too severe for the health center. On the other hand, health seekers may be referred to a higher facility from a lower one but would be unable to continue to the higher one because they may lack the money to pay for all the expenses involved (transportation, living expenses and cost of treatment).

Health District

The national level plays mostly administrative roles while the provincial and district levels administer health units below them and report to the ministry of health at the national level. The operational level is actually at the health district which corresponds to the divisional sub-divisional levels. The Health district comprises a district health service unit, a district hospital, a health office, an office for administrative and financial affairs, a medical center, and a health center. Many health districts address the health concerns of rural populations. The goal of this setup is to facilitate health seeker's access to health facilities and personnel. It also facilitates the distribution of medicines, administration, and coordination of personnel and activities. However, in practice, many problems impede the initial goals of this arrangement. This can be illustrated with the case of Goumbegeron.

Private Sector

Along side the public health structure are lay and missionary health facilities. The private health facilities follow MPH policies and guidelines though they are not organized according to the same structure as government facilities. Most private health institutions do not have as many highly qualified staff as government health facilities, but they are highly reputed for their respect for patients, regularity at work and the availability of drugs at affordable quantities and prices. In the Doume area, these services are offered by the Catholic hospital or clinic popularly known in the community as "*chez les soeur*" or at the sisters.

Pharmacies

There are also pharmacies, which have prospered in business bolstered by the disappearance of free medicines from public hospitals. The majority of Cameroonians live in the rural areas, but more pharmaceuticals, medical doctors, and health infrastructure are located in the urban areas than in rural areas. The initial policy was to deliver medicines free of charge to consumers in public health facilities.

Cameroonian national policy is to have pharmaceuticals distributed only through formally recognized institutions, like hospitals, health centers, and pharmacies. In practice, however, pharmaceutical products reach users through both formal and informal channels. Informal channels include store or shop keepers, or itinerant vendors, many of whom neither have formal training in handling pharmaceuticals nor in treating illnesses. Indeed, some of them cannot read and write, but in their daily contacts with clients, they consult, diagnose, prescribe, give medical counsel, and administer pharmaceuticals to their clients. As a result, a common folk belief is that sellers of pharmaceuticals are more knowledgeable about health and medicinal drugs than their clientele.

Pharmaceutical Vendors

Pharmaceutical vendors are males and females who vary in age from youngsters to old people. Many of them have other regular professions but sell medicine by the side for extra income. They range in occupation from farmers through indigenous healers, salaried workers, traders and shop keepers, and to retired nurses. Some sell in the open air in market places and on street corners. Others sell in shades while shop keepers sell in their shops. Many others are itinerant, moving from village to village with their medicines. They get their medicines from neighboring Nigeria, from pharmacies, and public health facilities. Many of our respondents reported having bought or used medicines bought from these itinerant vendors.

Self-Medication

Self-medication is usually the first reaction to the experience of feeling unwell. In the villages studied, self medication refers to all behavior that was carried out by caretakers or patients to reduce or eliminate illness using traditional or modern home remedies. In most cases, self-treatment is used when the patient considers the illness to be minor or when the patient believes that he or she recognizes the illness and knows the kind of treatment to apply. In countries where health facilities are difficult to reach, however, or where access to experts for medical help is difficult to obtain, self-treatment might be a major treatment option even for very severe illnesses. In such cases, self-treatment may be used to handle illnesses which people know to be above their competence but nevertheless venture to treat because better alternatives. For example, consultation with a medical expert is lacking (van der Geest, 1987:295). Cameroon is a country where such conditions obtain. Many public hospitals in the rural areas frequently run short of supplies of medicines and other materials.

To many people in villages, the services of the formal health sector (formally recognized hospitals, health centers, pharmacies, clinics, etc.) are not available or are available but with delivery methods that are not adapted to rural needs, e.g., private pharmacies sell in packets and do not sell on credit; they are located only in the big cities where there is money from salaried workers for most of the year. Informal vendors, on the other hand, have adapted to rural conditions—they offer door-to-door services, sell in affordable amounts to clients, and sell on credit, returning to collect money when the client has it, for example, during the coffee or cocoa selling season.

Technocrats and the ruling elite played a determinant role in shaping the performance of public health services in Africa. At independence, a major objective of the Nigerian government (which coincides with that of most African governments) was to eliminate poverty, illiteracy, and diseases. The commitment to health care was carried out by budgetary allocations which were used to establish physical infrastructure and to train health personnel (Alubo 1994). From independence to the present, many health programs have been elaborated. They have the following characteristics in common: an urban bias, emphasis on physical infrastructure and medical personnel, emphasis on biomedical care to the neglect or in some cases, suppression of other forms of health care, and a tendency to acquire high medical technology even though the health care priorities of the developing world like morbidity and mortality from malaria diarrhea and other infectious disease may be solved without sophisticated technology. Most highly equipped hospitals tend to be located in the urban areas to serve mostly urban elites and are not easily accessible to the rural world or the urban poor (Alubuo 1994; Mburu 1981; Bernaji 1984; Reuman and Reuman 1985; Golladay 1980).

Little attention is paid to maternal child health, parasitic and communicable diseases, and environmental sanitation and malnutrition. Many health services provided are not of high priority to the majority of the population. Primary health care programs designed at the center frequently do not correspond nor respond to local realities (Golladay 1980). Financial investment on health resources and infrastructure (hospitals, medicines, personnel) are important for raising and maintaining the quality of health of a country's population, but that alone is not enough. It is equally important to invest in better nutrition, potable water, education, economic prosperity, and social and economic infrastructure.

In theory, the national health policy is to deliver medicines free of charge. In practice, however, the policy does not always work (van der Geest1987).

Goumbegeron is a health district in Doume subdivision, in the Haut Nyong Division. Located 11km away from Goumbegeron, Doume is the subdivisional capital and seat of the district hospital. Goumbegeron has an integrated health center which by definition should be appropriately equipped with medicines and personnel and necessary equipment to handle the common health problems of the area. Following the ideals of PHC, Goumbegeron has a local health committee constituted from the community. Under the same principle, it should also have drugs, but so far it does not.

When we arrived at the health center, we found that it had been in a dilapidated state for several months. The health center was a building with a few bare metal beds. Patients were no longer going to the health center because it had no medicines. Those who could afford it had to trek 11 km to Doume. While there, they could either seek health care from the government district hospital or from the Catholic clinic. Most people preferred the Catholic health center because the financial charges were relatively less for the services and medicines provided. At the government district hospital, where there was a medical doctor, patients were confronted with having to pay consultation and laboratory fees, which they found to be too heavy.

The absence of medicines from the local health facilities preoccupies both health workers, who sometimes feel frustrated and cut off from the central health system, and patients and caretakers, who have to go further away to get treatment. Some health workers try to deal with the problem by buying medicines and reselling them to their patients at the health centers. Others get medicines from dealers and sell them to their patients on behalf of the dealer, perhaps for some compensation from the owner of the medicines in return.

The interview excerpt below illustrates why parents choose some health clinics over others. It also shows that, faced with the shortage of medicine, health workers try to do what they can to keep the health to keep facilities functional.

> George: Why did you go to Petit Pol (health center) ?
>
> Eloi: Well, at Petit Pol, some dealers go and leave medicines at Petit Pol which the nurse there sells on behalf of the owner of the products. There also, it is not expensive as in Doume or here at Goumbegeron. They have almost the same prices as "at the sisters.'" And also, they also have good medicines. There, despite the little sum of money we had, the nurse examined the child to see what was wrong. He thought that the child ate and was not able to pass out stool, perhaps because there was no stool passage. We said no, the child defecates normally. That's when he referred us to Bertoua (provincial).

The health seeker seems to be actively searching for medicines that cure effectively and which he/she can afford. Also to be noted is the respondent's comment that at Petit Pol they have good medicines. This indicates that users of health care may have their ideas of good and bad medicines even without any formal training in the field of medicine. This respondent was not literate and could not be said to have extensive knowledge about pharmaceuticals. It will be of interest to find out how such ideas developed. Though Goumbegeron is closer to the informant and the nurse there is more qualified (a Brevete nurse) than the one at Petit Pol, they prefered to go to Petit Pol because of the lower cost of medicines and probably because of the quality of treatment.

Among the private health providers are lay and religious health institutions. There are also lay individual health providers who operate unofficially or clandestinely as indigenous healers, pharmaceutical vendors, and health counselors. A lot of information about health and medicinal products is circulated through unofficial social networks and behaviors.

External Factors: International Policies

Many policies and activities carried out at the international level affect health policies and health conditions in developing countries. Examples of such policies include Primary Health Care (PHC), Essential Drugs, Structural Adjustment Plan, and other programs from WHO, UNICEF, the International Monetary Fund, World Bank, and other international organizations.

The Economic Crisis and Its Effects on Health

International factors affect public health via financial assistance and policy agreements and implementation. In this section I discuss the experience of economic crisis in Cameroon with respect to how it affects people's health and health care provision. I show that the crisis and the subsequent measures to arrest it made it difficult for households to provide health care for their members.

The main causes of the decline in the quality of life relate to both macro-economic forces like the fall in the prices of primary export products, budgetary income, deterioration of terms of exchange, and debt services. On the other hand, there are also causes from within the country like population growth and mismanagement.

The measures to counter this decline within the structural adjustment program aggravated the fall in household incomes. These measures include the following:

1. Price cuts for cocoa, coffee and cotton producers (a fall in price of 42% for cocoa between 1988/89 and 1989/90, of 47.4% for arabica coffee, of 60% for rubusta coffee, and 32.1% for cotton. This implies a loss of about 50 billion CFA for farmers of these products) (IPD/AC and UNICEF 1994). This led to a drastic reduction in consumption by rural households which draw most of their revenues from sales of these products.

2. On the service sector, the massive termination of many workers since 1989/1990 in public and private companies and in banks--24.000 according to the Ministry of Labor.

3. The introduction of a new contract system consisting of reduced salaries in order to maintain the maximum number of workers (which helped to save about 47.000 jobs according to the Ministry of Labor [as cited by the 1994 IPD/AC and UNICEF report]) (IPD and UNICEF 1994).

Direct victims of the economic crisis and structural adjustment program include those who lost their jobs and their households, new school and college graduates who could not find jobs, state creditors, state contractors, and coffee and cocoa growers. Affected sectors of the economy include food, employment, housing, transportation, education, health, banking, and commerce.

Structural Adjustment Programs

In this section, I discuss how the economic crisis and the structural adjustment programs applied to solve it affect households in their quest for health care. I begin by presenting a brief background and what constitutes the economic crisis and structural adjustment plan.

At independence, African governments were considered to be central in leading African countries toward development and economic sustainability. Based on this role, African governments assumed many roles, perhaps more roles in the life of their nations than they could perform efficiently and effectively (Wanyande 1993). Governments took on tasks like education, health care and delivery, law and order maintenance, and the control of the economy through parastatals. By the late 70s and 80s it was evident that governments could not deliver on the assignments they had assumed. The deterioration of public services began to be evident and the states had to rely increasingly on foreign financial assistance and loans. Before long, it was evident that they did not have enough foreign exchange to repay the loans. The situation was made worse by an accompanying global economic crisis, especially in the developed world, fueled by increased oil prices.

The failures of state government to develop their countries economically and politically could be seen in the socioeconomic problems that arose—including balance of payments problems, public budget deficits, unemployment, widespread poverty, a decline in agricultural productivity, and a general fall in average standard of living (Wanyande 1993). In some cases, standards of living fell below the levels at which they were before independence. This was the economic crisis in Sub-Saharan Africa.

A study of the situation requested from Africa by governors of the world bank held that the causes were attributable to the unrealistic development programs undertaken by African governments and especially by the excessive involvement of the state in the economy (World Bank 1981). As a solution, the bank laid out a series of proposals, which constitute the structural adjustment programs. These measures include currency devaluation, interest and exchange rate liberalization, government budget deficit reduction, trade and price liberalization, wage restraints, and institutional reform (World Bank 1984).

Cameroon was one of the countries that survived the global economic crisis of the 1970s. By 1986, signs of a crisis began to be felt, and in 1987, President Paul Biya announced that the country was in economic difficulty. The measures taken to fight the crisis included extensive reductions in government responsibilities in the economy and in the provision of public social services including health provision. The health budget was reduced, and primary health care was also adopted, and its principle of cost sharing (by which patients pay for part of the health care costs) was readily embraced as a relief to the government at this time of financial difficulties. Other measures to save money taken by the government as directed by the World Bank and the International Monetary Fund were a reduction in salaries by about 70%, delays in the payment of cocoa and coffee prices, the closing down of many government parastatals, thereby rendering hundreds of workers jobless and the raising of direct and indirect taxes. In a way, the government reduced its load and, in some cases, passed it on to the population and households who were already feeling the crunch. The devaluation of the CFA currency was another measure that further rendered the lives of households difficult by causing the prices of commodities to increase.

On the health front, with a cut in the government budget, many health supplies at public health facilities could no longer be provided on a reliable basis. Medicines and other necessary medical consumables were frequently lacking. Health facilities in many rural areas could not be maintained and many fell into ruins or close to a state of ruins.

Structural adjustment programs often require governments to lay off workers—down-size. Laying off workers or cutting their salaries, can have far-reaching effects on African households. In cities, salary earners support not only themselves and their nuclear families but also members of their extended families as well. A well-off man in Dakar or Dar et Salaam may have (in addition to his wife/wives and children) several other dependents--a brother-in-law whom he sponsors at a local university, a sister attending a secondary school, and a nephew apprenticing at a local garage. The same man's salary may also have to provide occasional subsidies to his parents, his parents-in-law, and other family members who remain in the village. Many villagers have no source of cash except for urban relatives, but villagers do have medical and other crisis expenses.

The Effect of the Economic Crisis and Structural Adjustment on Households

The effects of the economic crisis and structural adjustment programs are all affecting household incomes, which, in turn, are affecting their ability to seek health care. Researchers have shown that health care decisions at household level change as economic conditions change. In a study of health care decisions of households in an economic crisis context in the Peruvian highlands, Kathryn Oths (1994) found that the Andean pattern of treatment choice changed during the economic crisis because of a fall in household resources. Rather than abandon one for the other, highlanders continued to use both biomedical and traditional health systems but at a reduced scale, conserving their resources for the most serious illnesses.

Similarly, Sauerborn and his colleagues (1996) assessed the seasonal variations of the time and financial costs of illness for rural households in Burkina Faso and examined how it affected health-seeking behavior. They observed that economic parameters of households which influence health-seeking behavior change between the dry and rainy seasons. For example, revenues fell in the rainy season and were exceeded by expenditures, and household production was at its peak in rainy season resulting in higher opportunity costs of time. Illness perception varied with seasons; for example, in the rainy season, when incomes are low, fewer illness episodes were perceived, and the proportion perceived as serious decreased. With regard to health-seeking behavior, they observed that households shifted their healer choice in the rainy season (when finances were lower) away from high cost treatment, such as the hospital and dispensary, to low cost home treatment. They conclude that low revenues and the high opportunity cost of time in the rainy season influence the shift of health seeking from hospitals and dispensaries to the homes. They think, however, that higher financial cost is the main influence in this shift of behavior.

In Cameroon, fiscal deficits led to the adoption of a policy of "partial recovery of recurrent costs" in public health services through user fees (Sauerborn et al. 1995:1731). User fees in a context of drastically reduced household incomes are known to cause a drop in the use of health services (Koo 1954; Mburu). In the Bakoum area, health providers reported that attendance at health facilities drops during the poor season and rises during the cocoa selling season when people have additional income. Though users do not abandon the use of biomedical health resources entirely, it is likely that there is a drop in their use and an increased reliance on the use of traditional resources. A study designed to cover the whole year may be able to track this behavior. Many young women have taken to prostitution as a means to augment incomes (Courade 1994).

The fall in the prices of agro-industrial products like coffee and cocoa pushes farmers of these products to find new ways of generating incomes. For example, there is a renewed interest today in traditional activities and products as a response to the economic crisis (Gautier and Fadani 1994). One of these products is palm wine which has experienced a marked increase in its production and consumption. The reason for this is that incomes have fallen and the prices of most industrially produced goods have increased because of the devaluation of the CFA currency. The beer is sold mostly by women, and this helps to augment their household incomes. In the study site, women use cassava and palm wine to produce local gin which they sell in the locality. The drink is very popular.

Social and Economic Movements

The social context of health is changing in Africa. Many people are leaving their homes in the villages to work in the cities. Others go to work in other rural areas for agro-industrial and forestry companies. In most cases, it is the men who migrate, leaving their women and children behind. In many cases, there is a flow of people, goods, medicines, and information between the rural areas and the towns and between rural areas and rural areas. Some people move seasonally to plantations for harvesting, clearing, and tending of crops; others go for significantly longer periods of time. Whether the migration is for a limited time or for a long duration, it always has an effect on the families. Family structures are modified, and the possibility of increased or additional income to the family budget makes it easier for the family to face its economic and health problems. The prospect of having increased income and of being able to take care of health, educational, and other problems is an incentive to move out from jobless areas to more promising ones. People who move continue to have contacts with their kinfolk. Many participate closely in the activities and happenings back home--contributing money for tuition, health bills, ritual expenses, and various family needs. Household members of workers who go to town become employed and continue to contribute to the income of their family in the village, and are better off in health than households whose members do not send home money. Women on their part are becoming more and more affirmative in the market place, selling some of their produce and also augmenting the family income. The various external sources of income captured by the migratory forces of households help as informal sources of support for the households and guaranties their survival.

As the price of agricultural products, the major source of liquidity in rural areas, falls, the role of the female in the family as a food supplier and financial supporter increases. Traditionally, women produce most of the food. Cocoa and coffee prices have fallen and women now try to carry out some petty trading in the village to supplement family income. They process and sell palm wine, afofo, and food stuffs extra. Palm wine, it should be noted, is tapped exclusively by men but is sold by women, and afofo which is a spirit made of palm wine is processed and sold by women. Both men and women drink it, but the greatest drinkers are men.

Primary Health Care

Primary health care was designed to render health care accessible to a majority of people, especially the poor and powerless, residing mostly in remote rural areas that were not being reached by the old hospital-urban-based system. The approach was to integrate health activities with the participation of the community so that the communities could ultimately become self reliant in their own health provision and general welfare.

PHC programs were designed to emphasize disease prevention and community-based care provided for and run largely by the local community using their own local means. As quoted by van der Geest, PHC was designed for the

> promotion of proper nutrition and an adequate supply of safe water, basic sanitation, maternal and child care, including family planning; immunization against the major endemic diseases, education concerning prevailing health problems and the methods of preventing and controlling them; and appropriate treatment for common diseases and injuries. (1990:1026)

In Cameroon, following the Alma Ata declaration, the government designed a PHC program in 1982, but just six years later (in 1988) it was found ineffective. A growing economic crisis was partly to blame for the failure. Other reasons included structural and functional problems. By 1987, Cameroon's economy was in serious difficulty. The national budget fell from 800 billion francs CFA in 1987/88 to 572 billion francs CFA in 1991/1992 (Essomba et al. 1993). Government financial allocation to the Ministry of Public Health dropped from 5.% in 1989 to 4.4% in 1991 and per capita health expenditure dropped from 3971 francs CFA to 2060 francs CFA in 1992. Most public health centers in the rural areas could not function because of an acute shortage of drugs (Essomba et al. 1993). To make matters worse, the devaluation of the CFA franc has eroded its value to just about half of its 1990 value today. (Currently, US$1 is about 600CFA [Essomba et al. 1993]).

In 1989, the PHC policy was modified through a program called the reorientation of primary health care in Cameroon. The new policy aimed at correcting the errors of the old one, and adapting health care and health delivery to the difficult financial situation brought about by the economic crisis (Essomba et al. 1993). The new policy, which was officially adopted in 1992, aimed at "making PHC accessible to the entire population of

Cameroon" (Essomba et al. 1993). There have been sustained efforts to continue improving on the system. The new approach, however, continues to face problems like the old one. There is still a shortage of trained personnel; the economic crisis is still present; and the poor management of human resources continues to be a problem.

As Essomba and his colleagues (1993:237) rightly note, drugs are "a vital economic tool and provide the driving force for utilization of health services." However, many public health services suffer from a critical shortage or absence of vital drugs, equipment and supplies. In Cameroon, most people do not utilize health facilities without drugs. Though the new PHC version is more realistic than the earlier version, it still emphasizes curative health care approaches over preventive measures.

Primary health care programs do not seem to have produced the expected results and have been criticized for various reasons. Many of the criticisms levied against the adoption and implementation of PHC apply to the Cameroon situation. Programs still have a top-down focus. It has been politicized and governments are using it for their benefits or for political advantage. From a political perspective, Primary Health Care initially seemed to attract political attention as a quick and easy way for governments to make present themselves in a favorable light by providing (western style) health care which communities could not provide for themselves (van der Geest et al.1990). On the other hand, primary health care is not considered attractive to politicians because its outcomes take a long time to show. Consequently, primary health care programs are often among the first to be affected by declining government revenues (van der Geest 1990).

Another reason why PHC activities are given very low priority is that those activities emphasize the health of the rural, powerless, poor who, can be easily dispensed with, politically at no political risk to the government. In other words, governments are not too eager to implement PHC programs because they are directed at a section of the population which does not usually pose a major threat to governments, and does not need any political favors to remain quiet or compliant.

> Many governments in developing countries have adopted the PHC concept without giving much substance to the aims of autonomy. By officially including PHC in government policy, by training people, by setting up programmes and providing resources, the state has incorporated PHC into the existing health care system. PHC is not so much an 'antidote' to a maladjusted and overly expensive health care system but rather an extension of it. In most cases it is still organized from the top and carried out by professional workers from the state, with the help of outside finances. In this way PHC becomes a means of subordination which can be used to reach social and political consensus. (van der Geest et al. 1990:1028)

At the state level, van der Geest et al. (1990) summarize the characteristics of PHC as having the following medical, political and financial objectives:

> a. Medical: the objective is to expand the 'coverage' of medical provisions and to push back the mortality and morbidity rates.
> b. Political: the medical improvements brought about by state-initiated PHC must increase the political credibility of the government.
> c. Financial: via PHC the government hopes to reduce its expenditure (for basic health care) and to increase its revenue (with international aid). (van der Geest 1990:1028)
>
> A PHC project in South Cameroon which at first was primarily oriented towards prevention and education-cum-awareness 'developed' after some time into an almost purely curative service, not differing very much from a pharmacy on wheels where people could buy their medicine. Ironically, both parties, the medical staff and the villagers, appeared to be reasonably satisfied with this procedure (van der Geest et al. 1990:1029-1030)

In summary, it can be said that the population often expects something quite different from PHC than has been planned for it at her level. The three principal conflicts are probably that

> (a) people ask for curative instead of preventive aid, (b) eople expect material advantages, (c) people do not want self-reliance if it means they will be left to fend for themselves." (van der Geest et al. 1990:1030)

Essential Drugs Program

This was initiated and promoted in developing countries by WHO. WHO, started the Action Program on Essential Drugs (APED) in 1979 and emphasized the need for national drug policies. "The WHO maintains and regularly updates a Model List of Essential Drugs as an example for governments that wish to compile their own essential drugs lists." In 1985, WHO provided guidelines on the "rational use of drugs" The Essential drugs program is a component of the primary health care program. The essential drugs program was meant to ensure a reliable supply of medicines in developing countries and to reduce financial wastage through the purchase of unnecessary drugs or expensive drugs for which cheaper alternatives are available (Hartog 1993). The essential drugs program and primary health care program were widely adopted by governments in the developing world. However, these programs have experienced limited success because governments have had to cut back on health budgets due to the economic crisis.

Structural Adjustment

Economic policies have an impact on health just as much as health policies themselves. Structural adjustment packages introduced by the world bank and the IMF in many developing countries in the 1980s and 1990s were meant to regenerate their economies. How has this measure affected health care and health delivery in these countries? Methodological difficulties exist in assessing the effects of structural adjustment programs on health status and delivery in the Third World. Streefland and his colleagues (1995) enumerate the following:

1. The difficulty of sorting out the effects of long term economic decline from the impact of adjustment programs. Some effects are too long-term to detect or may be confounded by intervention measures.

2. Lack of reliable data and appropriate indicators.

Nonetheless, researchers hold that structural adjustment programs have an impact on people's health and on health programs. Such opinions, however, are not uniform. While some investigators consider structural adjustment as necessary for reviving the economies of the developing world, others hold that they cause the impoverishment of valuable groups due to loss of income and the withdrawal of government subsidies. According to Jorgensen (1995), there is no evidence that structural adjustment leads to decreased spending on health. On the other hand, Streefland et al. (1995) describe how structural adjustment programs have contributed to impoverish households and to a fall in the performance of basic health delivery. They describe a situation where health services are contracting because government resources are drying up. Streefland and his colleagues cite the case of Mali "where all health-related activities at the district level were discontinued by government decree except where personnel were paid by the local population based structures." They write,

> Recently, in most countries the collapse of peripheral services has affected even the district level, where there have been no funds to buy drugs or pay recurrent costs such as stationery, maintenance of refrigerators, motorbikes, and Land Rovers. (1995:14)

The same situation is reported in Nigeria where "structural adjustment has dramatically reduced the purchasing power of the poor and the devaluation of the currency has raised the costs of basic commodities" (Alubo 1994:13). The result is that hospital supplies have been cut, health services deteriorated, and financial obstacles to the use of biomedicine by most people increased (Alubo 1994).

> For Cameroon the situation has worsened in the past few years. As total expenditures declined in Cameroon at an annual rate of 10.7% from 1986 to 1987, salaries which had been 79% of recurrent expenditures during 1980-85 rose 99%. Consequently, only one percentage of recurrent expenditures was available for maintaining ministry of health vehicles, providing logistical support for immunization and for the other supplies and recurrent items. (Ogbu and Gallagher, 1992:618)
>
> In the 80s there were noticeable shifts towards the expansion of non-hospitable health care facilities. In Cameroon, health posts or health units were expanding at an annual average rate of 13% in the early 80s and 7% in the late 80s, compared to 4% in the late 70s. (Health posts or health huts, or health units are usually rural based clinics. These clinics do not have a resident physician but usually have a nurse or mid-wife, a medical assistant and one non-medical assistant. Physicians usually consult at these clinics once a week). (Ogbu and Gallagher, 1992:618)
>
> In Cameroon, 24% of all health sector employees are employed in the private sector and 34% of all medical facilities are private. Rapid expansion took place in the 80s when private activities took place in the rural areas helped to form the base for the primary health care programs. There are an estimated 10,000 traditional medical practitioners in Cameroon, mostly practicing in rural areas. Declining public expenditures on health could be balanced by further expansion of the private sector. However, such expansion is likely to be constrained by declining real incomes as well as lack of financial support from the government. (Ogbu and Gallagher, 1992:621)
>
> In Cameroon, the percentage of 1 year olds that have been fully immunized was 50%. In 1987, coverage had dropped to 40%. At the same time, budgetary allocations for immunization had fallen drastically. In 1986, the government allocated CFA 60,000,000 (US. $200,000) and UNICEF provided about $450,000. Government allocations have since fallen to CFA 20,000,000 ($66,667) and CFA 9,000,000 (about $30,000) for 1987 and 1988 respectively. Correspondingly, total immunization declined by over 50% in 1987. (Ogbu and Gallagher, 1992:622)
>
> In Cameroon and Senegal, declining numbers of births in public facilities and declining numbers of consultations at public health centers or hospital admissions respectively may be made up for by increasing reliance on private health care. (Ogbu and Gallagher, 1992:622)

PPPP The budget of the ministry of health for 1992-93 was 25,946,000,000CFA, and in 1993-94 it was 2439 a decrease of about –6,23 (Ministry of Finance 1993/1994).

CHAPTER 6
BAKOUM PERCEPTIONS OF ILLNESSES: HOW DOES DIARRHEA COMPARE TO OTHER ILLNESSES

Introduction

We know from literature around the world that diagnostic labels and perceptions of causation are important factors in treatment behaviors (Green et al. 1994). In this chapter, I examine and compare how diarrhea is perceived by mothers in relation to other common illnesses in the Bakoum area. Knowledge of such information helps us understand which illnesses are considered similar to diarrhea and which ones are different. It also helps in the understanding of treatment seeking patterns and practices in a larger context of children's illnesses.

To see how diarrhea illnesses are related (in terms of perceived causes, symptoms and treatments) to other childhood illnesses, I systematically recorded which signs and symptoms, causes, and treatments were associated with different illnesses from the transcripts of childhood illness interviews described in Chapter 4. Among the 100 persons interviewed across the three villages, 35 interviews were tape-recorded and transcribed verbatim. I use these data for the following analysis. In some of the interviews, we intentionally asked respondents to list the childhood illnesses commonly found in the village. For each illness they mentioned, interviewers asked them for the signs and symptoms, causes, and treatments most strongly associated with the illness. In some of the more open-ended interviews, I identified the associations from a post hoc analysis of the interviews transcripts. To do this, I searched through the transcribed interviews for places where informants mentioned particular childhood illnesses. I recorded the illness label they used, and identified all the signs, causes, and treatments they associated with it.

I organized the qualitative data in summary tables similar to those in Table 6.1. Yoder (1995) used a similar technique to describe mother's descriptions of types of diarrhea labels in Zaire. Each row represents one illness, as described by a single informant. The informant's identification number is located in the first column and the illness label they used is in the second column. The third column shows all the signs and symptoms mentioned by the informant to describe the illness. The fourth and fifth columns show the causes and treatments the informant associated with the illness.

Table 6.1 provides a qualitative description of informant's perceptions of illnesses. Reading across the columns captures how informants see and talk about an illness in their own words. Reading down the columns captures the list of signs/ symptoms, causes, and treatments that are salient to the group. The problem with such rich data, however, is that each illness description appears unique and it is extremely difficult to make comparisons across illnesses.

Ryan and Nolan (n.d.) suggest some systematic techniques for analyzing this type of relational data. They recommend first treating each column as if it were a separate free list. Free lists are commonly used in anthropology to identify the items in cultural domains. In all there were 35 informants and four lists (illnesses, signs and symptoms, causes, and treatments). I typed each list into a separate file. I then used Anthropac's free list procedure (Borgatti 1992) to identify the unique items in each file. In the process, Anthropac converts each free list into a respondent-by-item matrix. (This is essentially the process I used in the analysis of the literature on diarrhea in Chapter 3).

I found 16 illnesses, 58 signs/symptoms, 22 causes, and 5 treatments. In the process of eliciting terms, each respondent uses his or her own words. The result is that we end up with different expressions for the same item or concept. To simplify each list and eliminate such idiosyncratic items, I combined similar items into categories. For example, I treated "sex during pregnancy" and "extramarital sex" as the same. I treated "tired" and "sleeps a lot" as the same. I categorized all the different traditional treatments, whether taken at home (home remedies) or obtained outside the home from specialists, as "traditional medicine." I also created a category called Xother where I placed all the illnesses that were not given any attributes by respondents.

After making those changes in the original data, I counted the number of times that the reduced set of signs/symptoms, cause, or treatment (items) were mentioned. Tables 6.2 to 6.4 show the respective categorized lists and their frequency of mention. Such summary tables are common in ethnomedical and ethnobotanical studies (Hatfield 1994; Gardner 1995; Figueiredo et al. 1997; Nazarea 1998; Finkles 1985). Such summary tables can be further subdivided to focus analysis on more specific comparisons.

Some of the lists are fairly long, but most of the items are only mentioned by a few people. This is typical of free lists and is apparently typical of extracted lists as well.

The lists are helpful for describing the range of items and saliency in each cultural domain. However, they are not helpful in telling us about how illnesses are related relative to their signs and symptoms, causes, and treatments. For example is diarrhea or measles more closely related to scabies, or is diarrhea more similar to dysentery or to scabies? What is the difference between diarrhea and dysentery? To explore the similarity among illnesses, Ryan and Nolan (n.d.) suggest linking illnesses together as successive free lists.

The first step in this process is to create an illness-by-sign/symptom matrix, an illness-by-cause matrix, and an illness-by-treatment matrix. To do this, I simply counted the number of times that each sign/symptom, cause, and treatment was associated with each of the 16 most common illness categories. The respective matrices are displayed in Tables 6.5 to 6.7. These tables show the bivariate associations among attributes and illness categories.

Table 6.6 (illness-by-signs and symptoms) shows that diarrhea is most strongly associated with *watery stools* (66.6%) and *frequent stools* (38.1%). Dysentery is associated with similar but slightly different signs. Like diarrhea, dysentery has *watery stools* (25%), but unlike diarrhea, it is associated with *bloody stools* (75%). When we look at the similarity between diarrhea and dysentery based on perceptions of cause (Table 6.7), we see that the two illnesses are also associated with some common attributes. For example, diarrhea is associated with bad food (41.7%), but dysentery is not. However, both of them are associated with dirty water (25% for diarrhea and 33.3% for dysentery).

Tables 6.5 to 6.7 are good for identifying particular similarities and differences among pairs of illnesses. They are not very good at providing an overview of informants' general perceptions of all the illnesses and attributes combined. To visually display these relationships, Ryan and Nolan (n.d) suggest using correspondence analysis.

To make such an analysis feasible, I eliminated idiosyncratic attributes. I adopted three inclusion rules. I selected an attribute if (a) more than 30% of the respondents associated the item (symptom, treatment or cause) with a particular illness (where illness was mentioned by at least 4 people), (b) more than 50% of the informants associated an item with a particular illness that was mentioned by less than 4 people but more than 1 person, (c) the item was associated with at least 3 different illnesses. This identified 16 signs/symptoms, 13 causes, and 3 treatments--32 attributes in all.

To see how illnesses were related based on their signs and symptoms and treatments, I created a 13-illness-by-19-attribute matrix. Figure 6.1 and Figure 6.2 show the resulting correspondence analysis. Correspondence analysis scales both the rows and columns of a profile matrix into a single space (see Watts [1997] for an exceptionally clear description of the technique). Illnesses and attributes that are highly correlate, appear near each other in the output. For example, diarrhea was associated with watery stools in Table 6.6 (illness-by-signs and symptoms). This association is represented by the closeness between diarrhea and watery stools in Figures 6.1 and 6.2.

There seem to be two broad dimensions: an external-to-internal dimension and a stomach-to-head dimension. The external dimension comprises symptoms associated with la gale (scabies, or scratching), and the internal dimension is typified by symptoms of the diarrhea cluster (frequent stools, bloody stools, watery stools, bloated stomach). Kwashiorkor seems to lie between the extremes of the external-internal dimension, perhaps because it is thought to have both internal and external features or symptoms.

The second dimension is the stomach-to-head dimension. The head end of the dimension comprises cough, colds, fever, red eyes, and sores.

Hot body is found midway along the head and the stomach dimension. This may imply either that hot body belongs to both dimensions and/or that hot body is a label for illnesses that people do not know yet or which people are still trying to figure out.

To see how illnesses were related based on their cause and treatments, I created a 13-illness-by 16-attribute (13 causes plus 3 treatments) matrix. Figure 6.3 shows the resulting correspondence analysis. Figure 6.3 shows that there are two dimensions: the causes of stomach illnesses and the causes of other illnesses. Causes of stomach illnesses include sex, bad food, and eating vegetables and other foods that cause diarrhea. Causes of other illnesses include excessive sun, especially in the dry season, and cold weather.

Notice that treatments (hospital, health center, and pharmaceuticals) feature at the center of the figure. This may imply either that there are no special preferences in the use of treatment options or that respondents use the treatment options for all illnesses equally. It must be noted, however, that the data are retrospective recall. When actual on-going cases of diarrhea were monitored, it was noticed that people used more of traditional medicines for the treatment of diarrhea in children.

To see all the associations among illnesses, signs/symptoms, causes, and treatments, I ran correspondence analysis on the master file of 13-illnesses-by-32 attributes. Figure 6.1, Correspondence Analysis of Signs/symptoms, Causes, Illnesses and Treatments, shows the output. The graphic representation here suggests two main tendencies. At the top end is a familiar grouping of diarrhea, dysentery, worms, and kwashiorkor. This cluster is distinct from the other illnesses (malaria, measles, hot body, cough, and colds) toward the lower half of the figure. The illnesses at the top are associated with bad foods, sex, vegetables, dirt, and dirty water as causes and with watery stools, bloody stools, frequent stools, and bloated stomach as symptoms. From this diagram, we notice that respondents consider diarrhea to have characteristics similar to those of dysentery and worms since these illnesses are found close together. One potential problem worth noting by health care officials is that treatments for the one could be used for the other by caregivers at home.

The treatments (traditional medicine, hospital, and pharmaceuticals) are found in the middle of the diagram. This indicates, I think, that informants can seek treatment for most of the illnesses equally at any of the treatment options. While there is a clear distinction between external (measles and scabies cluster) and internal (diarrhea and dysentery cluster) illnesses, there does not seem to be a distinct pattern about where illnesses are treated.

I noticed, however, while monitoring actual cases of diarrhea, that informants tended to resort to traditional medicine or to home remedies first most of the time before considering other treatment measures. Reported behavior of this nature tends to present the ideal patterns. The practical situation on the ground, however, does not always allow for behavior to play out as shown by reported behavior. In the case of the Bakoum, the absence of a fully functional biomedical health system accompanied by chronic low household incomes makes it difficult for the people to use biomedical health services as they would like to.

In the lower half of the figure is the external illness cluster. Informants believed that the malaria is caused by hard work, dry season, excess sun, and shivering. These associations can be checked against the data in Table 6.

Table 6.6, titled Percentages of Signs and Symptoms, is a display of percentages of signs and symptoms associated with each illness. This table is a matrix of signs and symptoms (rows) by illnesses (columns) that were elicited from 35 informants. The total number of people who mentioned each illness is given in the second row under the illness. For example, the total number of people who mentioned diarrhea is n=6 for measles. The percentages of people who mentioned a sign and symptom are against the sign under the corresponding illness. For example, *frequent stools* was mentioned as a sign and symptom of diarrhea by 38.1% of the 21 people who mentioned diarrhea as an illness. *"Frequent stools*" was also mentioned as a sign and symptom of dysentery by two (50%) of the four people who mentioned dysentery. Of the two people who mentioned kwashiorkor, 1 mentioned diarrhea as its sign and symptom. "*Bloody stools*" was associated with diarrhea (by 9.5% of the 21 people who mentioned diarrhea), with dysentery (by 75% of those who mentioned dysentery), and with *kimama* (by 66.7% of those who mentioned kimama).

Overview

It is clear that many people agree on the signs and symptoms associated with some illnesses. This is the case with watery stools and frequent stools for dysentery. The number of people who mention an illness and who associate the same attributes to an illness is indicative of the frequency or incidence of the illness in the community. Spontaneous recognition of the illness and its symptoms suggests that people deal with it frequently and are most likely to have developed patterns of beliefs and responses to it. This is the case with diarrhea.

There are many signs and symptoms people are aware of, yet they group illnesses into general categories. The fact that the treatments lie in the middle of the diagram suggest that they are not seen as being particularly associated with any one illness type or cluster of illnesses. It also signifies that, ideally, health users do not favor any particular type of treatment option or health system as indicated by earlier anthropological literature by which people favored traditional medicine over biomedicine because they shared the same culture and world views of traditional medicine and its practitioners.

The sample here is small and the results cannot be generalized. However, the data point out certain trends that were reported by other studies. For example, Ryan (1995) also found the stomach-head and the internal-external dimensions among the Kom of Cameroon as did Nyamongo (1998) in his study of malaria among the Gusi of Kenya.

Sometimes I found that the interviews did not cover all the questions (for example, in some interviews people did not mention cause). In hindsight, I would have probed for these in greater detail. However, the data are taken from verbatim, unprompted texts. I assume that what people decide to mention in such interviews is what is most salient to them.

Table 6.1 Informants' Perception Illnesses by Attributes (illness, signs/symptoms, causes, and treatments)

ID	Illness	Signs/symptoms	Causes	Treatments
Informant #1	Diarrhea	Frequent stools, soft stools, weakness	Bad food, bad breast milk, vegetables	Traditional medicines, hospital or health center
Informant #2	Dysentery	Watery stools, small stools, bloody stools	Don't know	Hospital Traditional medicines
Informant #3	Malaria	Hot body,	Mosquitoes	Traditional medicines with hot steam from boiled herbs

Table 6.2 List of Signs and Symptoms from 160 Illness Descriptions (from 35 informants)

	Frequency	% (n=160)
Watery stools	15	9.4
Hot body	12	7.5
Frequent stools	11	6.9
Cold	9	5.6
Bloody stools	8	5.0
Shivering	8	5.0
Tiredness	8	5.0
Red eyes	7	4.4
Bloated stomach	6	3.8
Cough	6	3.8
White stools	6	3.8
Pain	5	3.1
Scratching	5	3.1
Stomach ache	5	3.1
Weight loss	5	3.1
Yellow stools	5	3.1
Cries	4	2.5
Fever	4	2.5
Sore pimples	4	2.5
Belly talks	3	1.9
Body pains	3	1.9
Feeling bad	3	1.9
Loss of appetite	3	1.9
Anus comes out	2	1.3
Constipated	2	1.3
Diarrhea	2	1.3
Headache	2	1.3
Malaria	2	1.3
Soft stool	2	1.3
Vomiting	2	1.3
Yellow urine	2	1.3
Yellow vomit	2	1.3
Big pimples	1	0.6
Blindness	1	0.6
Bloated jaws	1	0.6
Bloody nose	1	0.6
Bloody urine	1	0.6
Cannot sleep	1	0.6
Can't walk	1	0.6
Change of skin color	1	0.6
Fast breathing	1	0.6
Feeling like having	1	0.6

Table 6.2 Continued

	Frequency	% (n=160)
Ghost pimples	1	0.6
Hardlower abdomen	1	0.6
Hard work	1	0.6
Hoarse voice	1	0.6
Itchy throat	1	0.6
Less play	1	0.6
Red mouth	1	0.6
Runny nose	1	0.6
Scabies	1	0.6
Scars	1	0.6
Sores on lips	1	0.6
Thirst	1	0.6
Tiny legs	1	0.6
White mouth	1	0.6
Yellow eyes	1	0.6

Table 6.3 List of Treatments from 160 Illness Descriptions (from 35 informants)

	Frequency	% (n=160)
Trad	60	37.5
Hospital	47	29.4
Pharmaceuticals	14	8.8
Don't know	2	1.3
No treatment	2	1.3
Health center	2	1.3
Not applicable	61	38.1
Blank	7	4.4

Table 6.4 List of Causes from 160 Illness Descriptions (from 35 informants)

	Frequency	% (n=160)
Don't know	20	12.5
F-other	16	10.0
Dirty water	13	8.1
Bad food	12	7.5
Other	11	6.9
Sex	9	5.6
(Food)-vegetables	8	5.0
Dirt	6	3.8
(Weather)dry season	6	3.8
(Weather) sun	6	3.8
Hard work	5	3.1
Heritage	5	3.1
Other illnesses	5	3.1
F-fish	4	2.5
Worms/germs	4	2.5
Breast milk	3	1.9
Mosquitoes	3	1.9
We	3	1.9
Witchcraft	3	1.9
(Weather) rain	2	1.3
Local wine	1	0.6
Men	1	0.6

Table 6-5 Percentages of Treatments Associated with Each Illness (from 35 informants).

Accept(yes/no)		Illnesses																
		Diarrhea	Malaria	Cough	Measles	Worms	Cold	Headache	Body	Dysentery	Hernia	Kimama	Scabies	Stomach	Gale	Jaundice	Kwasiokor	Xother
	Treatments	n=23	n=14	n=8	n=5	n=5	n=4	n=4	n=3	n=3	n=3	n=3	n=3	n=3	n=2	n=2	n=2	n=10
1	Traditional	87.0	57.1	62.5	100.0	20.0	25.0	50.0	33.3	100.0	0.0	66.7	66.7	66.7	50.0	100.0	50.0	40.0
1	Hospital	47.8	50.0	50.0	40.0	100.0	50.0	25.0	0.0	33.3	100.0	33.3	66.7	33.3	100.0	0.0	0.0	50.0
1	Pharmaceutical	21.7	28.6	12.5	0.0	0.0	25.0	25.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
0	Don't know	0.0	0.0	0.0	0.0	0.0	25.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	No treatment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	10.0
0	Health Center	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0

Table 6.6 Percentages of Signs and Symptoms Associated with Each Illness (from 35 informants).

		Illnesses													
Accept(yes/no)		Diarrhea	Malaria	Measles	Cold	Cough	Dysentery	Kimama	Worms	Body	Gale	Jaundice	Kwasiokor	Scabies	Headache
	Symptoms	n=21	n=10	n=6	n=4	n=4	n=4	n=3	n=3	n=2	n=2	n=2	n=2	n=2	n=1
1.0	Watery stools	66.7	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	Hot body	19.0	40.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	Frequent stools	38.1	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0
1.0	Cold	0.0	60.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0
1.0	Tiredness	19.0	20.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0
1.0	Shivering	0.0	50.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0
1.0	Bloody stools	9.5	0.0	0.0	0.0	0.0	75.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	Red eyes	0.0	20.0	50.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0
1.0	Cough	0.0	0.0	0.0	50.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	Bloated stomach	14.3	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0	50.0	0.0	0.0
1.0	Scratching	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	50.0	50.0	0.0
1.0	Pain	0.0	0.0	0.0	25.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
1.0	Sore pimples	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0
1.0	Fever	0.0	10.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.0	Yellow urine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
1.0	Anus comes out	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	White stools	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Yellow stools	23.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Weight loss	19.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Stomach ache	19.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Cries	4.8	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0
0.0	Loss of appetite	9.5	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Feeling bad	4.8	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
0.0	Body pains	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0
0.0	Belly talks	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Yellow vomit	0.0	10.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Vomiting	4.8	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Soft stool	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Malaria	0.0	0.0	0.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Headache	0.0	10.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6.6 Continued

0.0	Diarrhea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0
0.0	Constipated	4.8	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Yellow eyes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0
0.0	White mouth	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Tiny legs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Thirst	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Sores on lips	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Scars	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Scabies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0
0.0	Runny nose	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Red mouth	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Less play	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Itchy throat	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Hoarse voice	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Hard work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0
0.0	Hard lowerabdomen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0
0.0	Ghost pimples	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Foamy stools	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Feeling likehaving	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Fastbreathing	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Changeofskinclol	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Can'twalk	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Cannotsleep	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Bloodyurine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Bloodynose	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Bloatedjaws	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0
0.0	Blindness	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	Bigpimples	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6.7 Percentages of Causes Associated with Each Illness (from 35 informants).

Accept(yes/no)		Diarrhea	Malaria	Cough	Measles	Worms	Scabies	Body	Cold	Dysentery	Gale	Head-ache	Kwasi-okor	Stomache	Hernia	Kimama	Jaundice	Xother
		n=24	n=13	n=7	n=5	n=5	n=4	n=3	n=3	n=3	n=3	n=3	n=3	n=3	n=2	n=2	n=1	n=10
1	Don't know	4.2	7.7	42.9	40.0	0.0	0.0	33.3	33.3	0.0	0.0	33.3	33.3	100.0	50.0	0.0	200.0	30.0
1	F-other	37.5	0.0	14.3	0.0	0.0	25.0	0.0	0.0	33.3	0.0	33.3	0.0	33.3	0.0	50.0	100.0	0.0
1	Dirty water	25.0	15.4	0.0	0.0	20.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	33.3	0.0	0.0	0.0	20.0
1	Bad food	41.7	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0
1	Other	8.3	30.8	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	33.3	50.0	0.0	0.0	10.0
1	Sex	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
1	F-veg	20.8	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	50.0	0.0	0.0
1	Wedryseason	0.0	7.7	42.9	0.0	0.0	0.0	0.0	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	Dirt	12.5	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	Wesun	0.0	15.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	10.0
1	Hardwork	0.0	7.7	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0
1	Otherillnesses	4.2	7.7	0.0	20.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	50.0	0.0	100.0	10.0
1	Heritage	0.0	7.7	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	F-fish	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
0	Worms/germs	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	10.0
0	We	0.0	15.4	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	Mosquitoes	0.0	15.4	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	Witchcraft	0.0	0.0	28.6	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	Breastmilk	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	Werain	0.0	15.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	Localwine	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	Men	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0

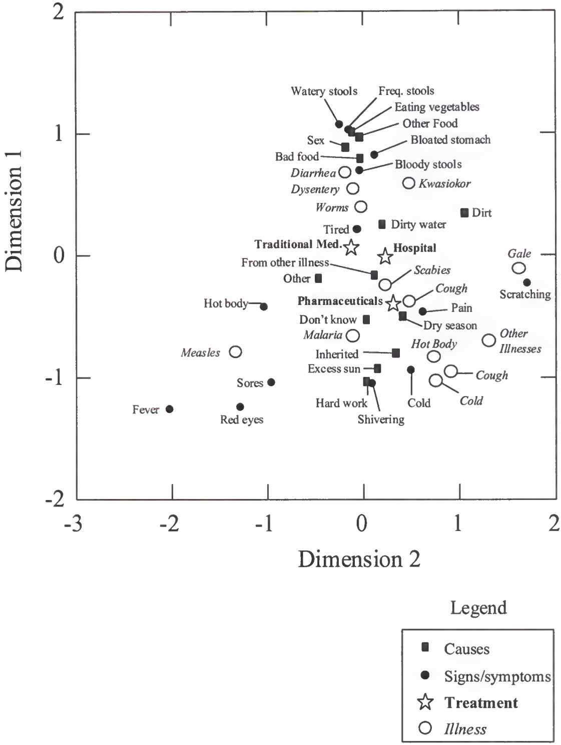

Figure 6.1 Correspondence analysis of signs/symptoms, causes, illnesses, and treatments

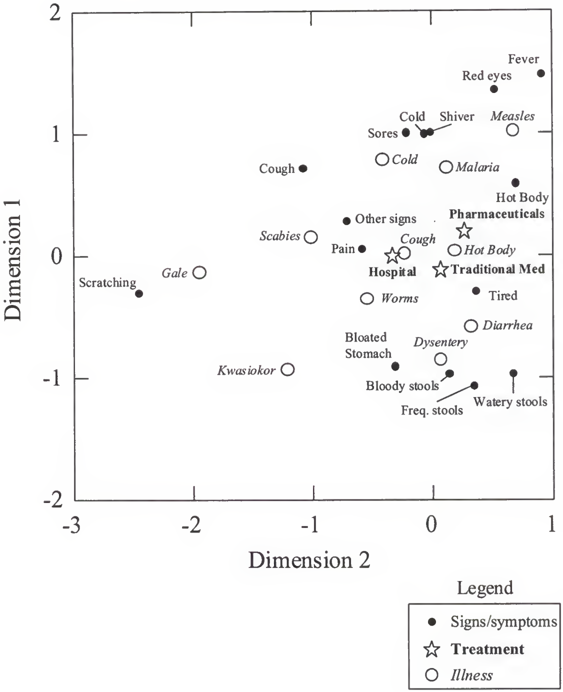

Figure 6.2 Correspondence analysis of signs, illnesses, and treatments

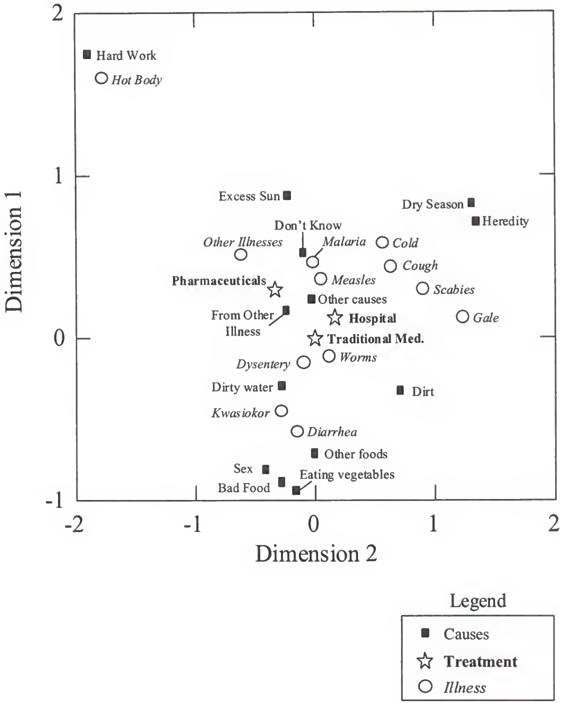

Figure 6.3 Correspondence analysis of causes, illnesses, and treatments

CHAPTER 7
ILLNESS BEHAVIOR AND ILLNESS EPISODES AS PROCESSES IN THE BAKOUM AREA

Introduction

As we saw in Chapter 6, diarrhea is one of the salient illnesses in the Bakoum area and is considered culturally to be similar to some illnesses like dysentery and different from others like malaria. In this chapter, I look to understand how Bakoum mothers manage 15 actual cases of children's diarrhea and how their perceptions of diarrhea affect or relate to their health-seeking behavior.

The relation between illness perceptions and illness behavior has been studied by many researchers as a stepping stone to introducing health care programs (Kendal et al. 1984; Nickter 1993). In the process, researchers have shown the importance of local perceptions/taxonomies/conceptualizations/beliefs of illness to illness behavior and to application efforts. For example, Yoder (1995) found that an anti-diarrhea program in Zaire that was meant to promote the use of ORT for the home management of diarrhea ignored information about the local perceptions and taxonomies. For that reason, it failed to address all the types of diarrhea recognized in that community. The result was that many people did not use ORT for certain kinds of diarrhea. They thought that ORT was not meant for the types of diarrhea that were not addressed by the program. In a study of indigenous classification and treatment of diarrhea in highland Guatemala, Burleigh and her colleagues (1990) suspected that diarrhea was underreported by the local population because the local definitions of diarrhea were different from the definition offered by the W.H.O.

Both Yoder and Burleigh et al used focus groups to collect data. Focus groups generate a lot of ethnographic data on how a society handles a cultural issue. They are not ideal, however, for understanding how illnesses and illness behavior unfold over time.

Researching illness behavior as a process may be accompanied by certain constraints. For example, it requires a longer time in the field than do other methods such as surveys. Furthermore, unlike other methods, it may require simply waiting for enough actual illness cases to develop to make the study worthwhile. However, the advantages of on-the-ground observation outweigh the disadvantages. For example, the approach permits one to monitor actual behavior and observe or understand the sequence of events. Day-to-day monitoring, reduces recall time and therefore reduces problems related to recall time (see Bernard et al. [1984] for problems related with informant accuracy and recall).

The process approach permits us to see the dilemmas, the considerations, and the factors that parents take into account as they deliberate and go about treatment. Very often, studies of treatment choice tell us the treatment *options* that caretakers or seekers have to choose from and the factors that *may* influence those choices. However, there are other things that parents have to consider. Mathews (1987) calls them goals and suggests that we frame questions in our investigations of illness behavior taking those goals into consideration. Looking at illnesses as a process allows us to identify, monitor, and assess those goals. Used as a complementary component of interviews and other methods, the monitoring of actual cases gives a rich and complete picture of how people behave when their children fall ill.

Each time my research team and I identified a child with diarrhea in the village, we visited the home each day and collected information on how the child was doing in the last 24 hours. The data I collected included information on the name or type of diarrhea diagnosed by the respondent, the symptoms of diarrhea she recognized and observed, the treatment or behavior undertaken by the respondent to treat the child, the foods she thought were recommended and those she thought were forbidden for the child at each stage of the disease, and the rationale she gave for the kind of treatment behavior undertaken. I recorded the data on summary tables (see Table 7.1).

Kinds of Diarrhea

Cognitive Schema for Diarrhea

In our interviews and discussions with informants, we asked them about their beliefs and ideas about diarrhea and other illnesses. For example, we asked them to tell us the term for diarrhea in the Bakoum language. Respondents gave us a series of names—folle, chando, kimama, shando. Some said these were different kinds of diarrhea. Others thought that they all referred to the same thing—diarrhea—while others made more specific distinctions. This last group held that kimama was dysentery and that chando was the Bakoum term for the verb "to defecate." To them, diarrhea in Bakoum was either koumleu or folle. From the following interview excerpt with Kouah Gregoire, we see that the distinction between kimama and folle (diarrhea and dysentery) is neither clear nor controversial.

George : Are there many kinds of diarrhea ?

Kouah : Yes, there is bloody diarrhea which can be called dysentery ; as they used to teach us in school. Dysentery is bloody stools. The child deficates and there is some blood there. There is also simple diarrhea.

In the monitoring of actual cases of diarrhea, 13 respondents said their children were suffering from one kind of diarrhea--koumleu. Many informants said that fole, koumleu, and chando represented the same thing. For our first week of interviews, people told us that the Bakoum word for diarrhea is chando. In the second week of interviews, we were given the name koumleu. Subsequently, each time someone mentioned that diarrhea was known as chando, we probed for koumleu and vice versa. Progressively as we got the various names attributed to diarrhea, we continued to check and cross-check with our new informants until we stopped having new terms. By the end of the exercise, we concluded that folle and koumleu were interchangeable words for diarrhea. Chando on the other hand could mean diarrhea but technically, chando means "to defecate or pass out stool."

Another kind of diarrhea which was mentioned during the ethnographic interviews was shambo. Shambo was said to be caused by extramarital sex either by the woman or the man. Sex by parents is widely considered a cause of diarrhea in children in many cultures of the Bantu-speaking region in Africa (Nkwi 1994; Green 1994) though each culture distinguishes slight differences in the nature of the sexual relations involved. The most common elements are sex during pregnancy, sex while still nursing a baby, or cheating.

Kimama, as mentioned earlier, is another variety of diarrhea that people had varied ideas about. Most people translated it as dysentery. Symptoms or the key signs and symptoms associated with kimama are a feeling to go to the toilet but, on arrival, only very little stool passes out, bloody stools. Two mothers said their children were suffering from kimama. Most people know diarrhea as a life-threatening disease and is not contagious.

Behavior

Delays. We would expect that as soon as parents notice an illness, especially one like diarrhea, which they clearly identify as life threatening, they should rush to treat it by giving medicines or taking the child to a medical expert. However, this is not always the case. Many studies of illness behavior report that caretakers "wait," and "delay treatment." In fact, many parents reported that they "did nothing." For example, informants in Kom reported to Ryan (1995) that they often delayed treatment for about 24 hours after diagnosing an illness. This behavior, variously referred to in the literature as "delays" or "waiting" or "doing nothing," refers to the practice where the caretaker or patient diagnoses an illness, but "does nothing" with regard to treating it initially.

Similarly, in our monitoring of children's diarrhea episodes in the Bakoum area, many respondents (11) reported "doing nothing" before the end of the diarrhea episode. Table 7.2 organizes the treatment behavior by case and by day. The columns represent the days on which behavior was observed and the rows represent the cases of diarrhea. Each cell indicates whether treatment was given (T) or not (N). We noted that out of 15 diarrhea episodes, monitored for a minimum of four days and a maximum of seven days, all cases had at least one day when caretakers reported having done "nothing."

However, it is important to distinguish or identify at what time in the course of the illness caretakers "did nothing." Was it soon after diagnosis, midway in the course of the illness after treatment had begun, or toward the end of the illness? A close examination of the data shows that "waiting" could occur both at the beginning of the illness or in the course of the illness. Most of the N or no treatments on the last days (like in cases 2, 3, 4, 8, 9, 10, 11 and 15) indicate that the illness was judged by caretakers to be finished or finishing. Five illness episodes (6, 7, 12, 13, and 14) received no treatment at all.

For how long then can parents "wait" before commencing or recommencing treatment? Again, this varied. "Waiting" time ranged from one day to an entire illness period. From Table 7.1, we see that while two parents waited for two days before beginning treatment (the least waiting time for this sample), others waited for more than two days, while eight others did not wait at all.

Why wait? It is not clear what determines the length of waiting but parents gave various rationales for "waiting." Two parents said that "traditionally, when diarrhea starts, medicine is not administered immediately." Another said that she had to wait to see how the diarrhea episode evolved. One mother, said that she delayed treatment because the medicine (traditional medicine) was far away in the bush. However, for the six days that we monitored her child's diarrhea, the mother did nothing. It is not clear from the data whether cases of waiting are related to developmental diarrhea. But generally, studies of diarrhea across cultures report that parents rarely treat developmental diarrhea (Nkwi 1994).

Money was often cited as a reason for "waiting." For example, one mother waited for two days because she had "no money to buy pills." On the third day, she reported that the nurse at the health center helped her with pills which she gave to the child. It seems that many people who have no money to treat their children use "waiting" as a strategy.

What caretakers do during the waiting period is still a matter of speculation. I suspect that during the waiting period, while hoping that the illness may go away on its own, parents also seek help from their social networks, as in the case of the above mother who sought help from the nurse. Others try to find or raise some money while others seek someone who may know the illness and is willing to treat it for free.

Treatment Interruption

A close inspection of the data also shows that the practice of "do nothing" sometimes occurred after treatment was begun. After commencing treatment, parents may stop for some time before continuing with the treatment process. Treatment interruption was observed in 2 of the 15 cases of diarrhea we monitored. This behavior is contrary to the expectations of biomedical professionals. From an applied perspective, knowledge of the practice of treatment interruption may be important for health implementers who are interested in knowing why certain prescriptions may not be followed through by patients and their caretakers.

In one case of diarrhea, which we monitored for five days and during which interruption occurred, treatment started on the first day that diarrhea was diagnosed. Then, on the second day, the parents reported that "nothing" was done "because they were in the farm." This implies that even after treatment begins, other things (like farming) may interrupt the process of treatment. Most farms are far from the village. People travel many kilometers from the village to the farms, and during peak farming or harvesting seasons, people move to the farm where they spend several days or weeks working.

Interruption after treatment began was also caused by the dosage of the medicine. For example, during one diarrhea episode, which we monitored for eight days, treatment (traditional remedies) had been going on for two days before our initial interview. On the third day, we were told that medicine was not given to the child because "it is not supposed to be given every day." In other words, the medicine was not required to be given every day, or the dosage required that it not be given every day. On the fourth day, the medicine was administered but was not administered on the fifth day, the reason being that a fresh supply of medicines had not been acquired.

If these two cases are any indication of treatment interruption, then it is noteworthy for medical professionals who have to prescribe antibiotics which require uninterrupted administration. Cases of resistance to antibiotics have been noted in many parts of the world, and it is likely that such treatment interruption habits may be one contributing factor to this development in this area.

Although parents say they do nothing and have been reprimanded by biomedical health workers for "doing nothing or wasting time with the child at home rather than bringing him/her to the health facility" (Ngubane 1981), I suspect that a waiting period is used to do a lot of things. Lack of money, lack of knowledge of what to do, trying to understand what is going on or to determine what illness is going on, and looking around for help from members of the social network are all part of the waiting period. For example, Naguengue Solange and Nganke did nothing throughout their child's diarrhea episode which ran for five days. For the first two days, their reason for doing nothing was that they wanted to see how the diarrhea evolved. On the third, fourth, and fifth days, their reason for doing nothing was that they lacked money or the financial means.

They would not try indigenous medicine because, according to them, no precise doses are prescribed. On the sixth day, their reason for doing nothing was that they observed that the child's stool was beginning to be harder—a sign that health was returning. We notice here how the rationales for treatment behavior change with changing symptoms. From the rationales, we also observe the influence of economic status on treatment behavior. Similar behavior was reported by Ryan in his study of treatment behavior among the Kom of Cameroon. Ryan (1995) observed that less wealthy households delayed treatment longer than did wealthier households in seeking outside health care.

Another level where "do nothing" was observed was toward the end of the illness. It seems that caretakers observe patients very carefully taking note of the symptoms. Once they start seeing signs that the symptoms are reducing either in frequency or intensity, like less stools or harder stools in the case of diarrhea, they stop treatment. So do nothing toward the end of the illness is influenced by reduced intensity of symptoms, interpreted as the disappearance of the illness. This approach to treatment differs from the biomedical approach in that the biomedical approach may seek to treat the underlying cause which may be germs or bacteria in the case of diarrhea. The folk approach focuses on the symptoms and may explain in part why some treatment processes as abandoned midway.

In some cases of diarrhea, we noted that treatment was not administered at all. For instance, in one case that we followed up, we were told during our initial interview that the symptoms were beginning to disappear. Apparently, the diarrhea had been going on for some time. For two days after our initial interview, nothing was done "because there was no more medicine." For the following two days, they still did nothing, explaining that it was because the diarrhea was subsiding. On the fifth day, they reported that the child had five yellow, watery stools, which the mother interpreted as a resurgence of the diarrhea, but again no treatment was administered because, according to her, "since it had been treated to no avail with tree barks it will stop by itself." She was no longer going to treat it with tree barks anymore. However, when we asked what she would do if the diarrhea continued, she said that she would no longer treat it with tree barks but would take the child to the hospital if it did not stop. She had not changed the child's diet even though she enumerated the foods that needed to be withdrawn from a child's diet because of diarrhea.

Simultaneous Behavior

Observers of health-seeking behavior have reported the display or practice of simultaneous behavior among patients and caretakers who use more than one treatment at the same time, sometimes from different health systems or medical traditions. Caretakers, in their efforts to treat an illness, may take several decisions and actions at the same time. For enduring or severe illnesses, caretakers are known to use multiple treatment approaches at the same time. Some researchers call this practice *shotgun therapy* (Colson 1971). Hsu (1955) reported this practice in southern China where people simultaneously used contradictory medical systems to treat cholera.

Many studies show evidence of health care seekers moving back and forth from one health provider to another and from one treatment modality to the next (Janzen 1978). Treatment behavior takes place over time, from when symptoms are noticed to when the illness is thought to be finished (use the various stages in this statement). Within this period, treatments may overlap. Ryan (1995) found among the

Kom that treatment modalities often overlapped whereby, for example, patients took pills while at the same time drinking a traditional doctor's prescribed medicine.

Multiple treatments may also be taken to treat simultaneous multiple illnesses. For example, In one of the cases of diarrhea that we monitored, Djam Julienne diagnosed that her 8-month-old baby had diarrhea and used traditional herbs (*tige*) to treat the child. The next day she told us that she had also given nivaquine and paracetamol because she noticed that the child's body was hot. She reported that the child was also coughing. The paracetamol and the nivaquin, she explained, were to treat the cough and cold.

Sequential Treatment Behavior

Sequential behavior presupposes the existence of multiple treatment options. In most parts of the world, different treatment options coexist. In pluralistic medical contexts, such as Cameroon, patients and caretakers often have to select from the various treatment options available to them or at their disposal. In the Bakoum area, the treatment options available to the people included wait/delay/ do nothing, home remedies, two local health centers, the Catholic health center at Doume, and a public, district hospital at Doume.

Sometimes, for the same illness episode, caretakers may have to use more than one treatment option, sometimes simultaneously and sometimes one after the other. The treatment options may also be of different medical traditions.

Sequential behavior is determined by various factors like the characteristics of the illness, patient, caretaker, health care facility, and the region. To understand sequential behavior, it is important to understand the context in which the illness and the behavior take place as well as the dilemmas, dynamics, and the rationales that the caretakers experience and the goals they are trying to achieve.

Sequential behavior could be progressive where caretakers move from "doing-nothing" through use of home remedies to seeking specialist help from outside the home. Caretakers tend to move from treatment options that require less effort, time, energy, and resources to those that are more demanding. Such movement could be vertical or horizontal. Horizontal movement, in this case, is when treatment for the patient is changed from one health facility to another in the same category or medical system. For example, moving a patient from one hospital to another hospital or from a traditional healer to another traditional healer. Vertical movement is when treatment is sought from a lower level treatment option to a higher level option. For example, self-treatment or home management using home remedies would be a lower level compared to hospital treatment or treatment by any specialist outside the home. Levels here are determined by the degree of effort or resources needed to access it.

Symptoms

Out of the 15 episodes of diarrhea, there were a total of 18 symptoms mentioned. The list of symptoms, by frequency, is shown in Table 7.1. We notice that much attention is focused on stools. Out of 18 symptoms about half have to do with stools. Parents take special note of children's stools. Parents monitor stools as a means to determine the child's health and whether the food being fed to the child is good for it "or is accepted by the child's body." In societies where extramarital sex or sex during the nursing or lactation period is considered a cause of diarrhea, this (stool monitoring) may also be a way to indicate the mother's or parent's social relations. Sometimes a child's diarrhea may indicate that the mother may need to cleans or treat herself, especially in places where diarrhea may be regarded as caused by the mother (see Mbeh 1996).

From the list, we notice that watery stools is the most commonly recognized symptom with nine mentions. Frequent stools and hot body both had five mentions and tiredness had four mentions out of 15 cases. Yellow stools had two mentions and the rest had one each.

Treatment

Treatment consisted mostly of various concoctions using leaves, tree barks, herbs, and roots. In the following interview excerpt, Kouah Gregroire (interview : Nov 19-1997) provides an example of such treatment with young guava shoots.

> George : Are there people in the village who treat diarrhea ?
>
> Kouah : There are old mothers who know how to give the treatment for diarrhea, as I said earlier that there are young leaves of guava that are prepared. There are also, other leaves that I cannot name in French (interview was in French).
>
> George : Even in the local language (Bakoum)
>
> Kouah : Other leaves are called *Tige*. Because I know that it is being taped, you will go and struggle or what ?
>
> George : Yes.
>
> Kouah : So when the woman takes that, she mixes with water. She turns and turns and the leaves become tender. The leaf is put in another leaf, the tige in another leaf and it is placed on the fire. When it is soft, it is put in water and turned and turned and turned until the water becomes quite green and the child drinks.
>
> George : and it stops it (the dirrhea) ?
>
> Kouah : It stops. It stops diarrhea immediately. If it is simple diarrhea, it stops it right away.

In a study of children's diarrhea in highland Guatamala, Burleigh (1995) suggests that there may be several or "different treatments during different phases of a diarrheal episode." This seems to be the case, too, in the Bakoum area. The findings here also tend to confirm the fact that treatment behavior is adjusted or modified according to changes in the illness as observed by caretaker.

Treatment was also influenced by household finances. In fact many respondents said they had not treated or taken their children to the hospital because they had no medicine. Many people reported using indigenous medicine because they lacked money to buy pharmaceuticals or go to the hospital, in which case, traditional medicine was their only option. For example, Loumo Augustine took care of her grandchild who is one year old. For the first two days that she was interviewed about her granddaughter's diarrhea, she said that she had not done anything to treat the diarrhea because she did not have money. On those two days, she had observed various symptoms on the child, including that the child could not sleep at night, was tired, had lost weight, and was overdue in starting to walk. She had also noticed that the child had passed out three stools on the second day. On the third day, she observed that the child's stool had blood.

The child was taken to the nurse at the local health center at Goumbegeron and was given some pills, which she could not identify. She explained that the nurse had just helped her because he was her "son." The nurse was not her biological son. The child finished the pills in two days. On the fifth day, she reported that the child had had two a stools which were a little hard and without blood. They had given nothing. In the meantime, the child's diet had also been modified. During the first visit and interview, the child was reportedly fed with *legume sel-piment*. On the second day, she reported that in effect, the child should no longer be fed with legume sel-piment (which is considered a cause of diarrhea). From the third day, she was being fed different foods like soup cooked with tomatoes and oil, cassava, beans, and rice.

Where treatment is obtained is frequently determined by the parents' financial means. Many people who go to the hospital barely have enough money but hope that it would be enough to pay for prescribed medicines. As the interview excerpt below shows, consultation, laboratory, and other fees are not seen as part of the treatment of the illness and can be easily construed as a waste of money. The following narrative illustrates the point that the focus of the caretaker is to use his/her money for drugs or direct treatment.

Eloi and his wife Bibiane had a child who suffered from a chronic case of diarrhea. They tried all they could in the local health facilities and in the traditional medical know-how to no avail. Here, in the process of saying why they moved from one health center to another, they highlight the critical role of financial means and how the financial charges of the health center affect the effective demand of health care from people with very marginal or very limited financial resources.

> George: Yes, what I want to understand is that, you first went to the sisters' and then you went to the central hospital (public district hospital at Doume) and I wanted to know why you changed hospitals.
>
> Eloi: At the central hospital it was just because they have all equipment for medical tests and examinations. And there is also a doctor. There, very easily, they tell you what is required and what is not. And they actually tell you what the child is suffering from. At the sisters,' it is better because first of all there are medicines and at a cheaper cost. So you do not spend as much as at the central hospital. Because at the central hospital, there is the consultation fee, that is to see the doctor himself, 600cfa. You leave from there, before even paying the 600cfa, you pay a ticket of 100cfa. The 600cfa is paid to the cashier, . The 100cfa also to the cashier. After that he sends you to the doctor. And the doctor sends you to the laboratory technician. There, we had to give 3000cfa for the laboratory technician to do the medical tests on the child. So that was very disturbing to us. Because we thought to ourselves that with a sum of money like that at the sisters' we could pay for medicines directly, instead of going and spending it only for the

> laboratory tests. In a situation where we could not easily find money to pay the medicines prescribed.

The informant used certain criteria to choose among health facilities—the public hospital and the Catholic health center in this case. According to the informant, the hospital is good because it is well equiped and has well qualified personnel like the medical doctors. It also has a laboratory. These factors help the hospital to be able to make quick and sound diagnoses of illnesses. However, the hospital is expensive because clients have to spend on many aspects, including consultation and lab fees. The Catholic clinic, on the other hand, is less expensive though it does not have a medical doctor nor an equiped lab like the hospital. The advantage of using the Catholic clinic according to him is that, with little money, one can still be able to buy the prescribed medicines because one will not have to spend money paying various fees.

He then talks about the dilemma of whether to use money for "other things" rather than for medicines and the logic of doing so. He sounds like medicine is more important than the consultation and the lab tests, as if a large sum of money spent medicines sounds more logical and justifiable than when spent on consultation, ticket, and/or lab tests, and examinations). In other words, what is the logic in coming to a hospital, spending all the money you have on other things, and finally not having money to buy the prescribed drugs?

> George: And what made you go to Petit Pol?
>
> Eloi: At Petit Pol, there are certain business people who go there and leave medicines which the nurse there sells for the owner. There also, it is not expensive as at Doume (at the public hospital or here at Goumbegeron health center). It has almost the same prices as the (Reverend) sisters. And they also have good medicines there. There, despite the little sum of money we had, the nurse examined the child to see what was wrong.

Two major things seem to emerge from this informant about what influences the choice of a treatment facility in the Bakoum area: (a) money and (b) medicines. The health seeker seems to consider whether she or he has enough money, whether the health facility has medicines and whether the medicines are affordable.

Traditional medicine in many cases was free—they either fetched it themselves or went to female specialists who were not professional indigenous healers but were well known in the villages as curers of children's illnesses.

Another aspect of treatment was purging. Though this activity was not mentioned in the treatment of the diarrhea cases that were closely monitored, it frequently came up in the ethnographic interviews. For example, Loumo Augustine's child was about one year old and suffering from diarrhea. When we met her, she had not yet given any treatment to the child because, as she explained, the medicines were far away in the bush. More of her explanations of how she was to treat her child follows:

> Why have you not yet given anything to your child ?
>
> Answer : Because the barks that I need to treat him are far in the bush. I will go and fetch them presently.
>
> How is your child now that he is ill ?
>
> Answer : He has lost a lot of weight ; his color has changed ; he is tired and does not play as before.
>
> Which barks are you going to use to treat your child ?
>
> Answer : I will use the barks called *Kibobola*, which I will prepare and give the child to drink and purge him with the other quantity.
>
> Which quantity will you use ?
>
> To purge him, I will use two pumps per day. The quantity I give him to drink is a spoon in the morning and a spoon in the evenning.

Obviously, from her explanation of this treatment process, more liquids will be taken out of the child's body than will be put in.

Dietary Patterns Associated with Childhood Diarrhea

Food as Treatment

Food is recommended as a treatment for diarrhea. According to many informants, there are some foods like plantains that treat diarrhea because they harden the stool. In the following interview excerpt, Loul Mbengue Isidore explains why plantains are thought to be good for treating diarrhea.

> George: If you have diarrhea, is there any food that you can eat and it will stop (the diarrhea)?
>
> Loul: If you have diarrhea, I think there is. There are foods, that if you eat, they can help you . . . as I told you of plantains.
>
> George: mhm.
>
> Loul: Yes, plantains harden the stool. Yes, it hardens. If you eat it, in any case, in isolation, it will aid you have your health back. (Loul Mbengue Isidore, 26 years old, interviewed: Nov-20-1997)

It may be noted that this practice was found among the Beti to the south (forest region similar to the Bakoum area) and among the Kom (in the grassland, English-speaking area, very different from the Bakoum) of the northwest province of Cameroon. Generally, it is explained that the plantains (in the Bakoum and Beti areas) and a version of Banana in the Kom area. These are roasted in the fire and eaten without any sauce or deep. Some recommend that the wood ash on it not be cleaned. In the Bakoum area it may be eaten with prepared (cooked) young shoots of guava leaves.

While some foods are recommended for treating diarrhea, many are discouraged for causing it. For example, les legumes sel-piment (salt and pepper vegetables) was the most commonly reported food responsible for the cause of diarrhea. For that reason it was often withdrawn from a diarrheal patient's (both children and adults) diet.

As one informant put it (see interview with Samezogou),

> What are the taboo foods for children?
>
> Answer: Fresh fish. It causes diarrhea. Bush meat (wild game meat), which also causes diarrhea.
>
> What food taboos are linked to pregnant mothers?
>
> Answer: Red hare. The child that will be born risks having the same kind of cough like this animal. There is also a large sized fish of black color and a large flat head. The fish resembles a *Silluire*. If she eats this fish, at birth the child will have a head broken (divided) into to two. [I suspect that this idea of a child's head divided refers to the fontanelle, a sign of extreme dehydration due to prolonged severe diarrhea] These cases are common here in the village. The pregnant woman must avoid pointing fingers at a passing snake, or she will have difficulty giving birth. She must not drink water from the river because the fish which she is forbidden to eat live there. She must not also eat eggs without mixing them with a certain medicine otherwise the child will be born with a sick foot.

Another mother gave the following food taboos:

> Question: In this village, are there foods forbidden from children?
>
> Answer: Yes.
>
> Question: Which are ones?
>
> Answer: Fresh fish, for children before three year (that is, forbidden from children less than three years)
>
> Question: Why?
>
> Answer: Because the fish kills children. Further more, if a nursing mother eats fresh fish, it will spoil her milk and whn the child drinks it, it will divide its head and kill the child.
>
> Question: Have you ever seen such a case?
>
> Answer: Yes, fresh fish is also forbidden from pregnant women for the same reasons.

Question: Which other foods are forbidden from children?

Answer: There is beef, because it gives illness.

Question: Which other illness is forbidden from pregnant women?

Answer: There is the snake, else her child will crawl like a snake. There are eggs too, if she eats them, her child will not have hair. Pork, else the child will talk like a pig.

Question: What is done at the birth of a child in order to prevent the child from having frequent illnesses?

Answer: Backs (of trees) are put in his (bathing) water and he is purged with the same backs.

Question: Are there rites to prevent diarrhea?

Answer: Yes.

Good and Bad Food

In the following interview excerpt, a 26-year-old male informant (Loul Mbengue Isidore ; Nov. 20-1997 describes good and bad food.

George: When one says here that food is well prepared, what does it mean ?

Loul : When food is well prepared, you mean what was used for its preparation, I guess that's what you mean ?

George : mhm.

Loul : Yes, during preparation, the woman makes or uses ingredients, onions, because we have good quantities here, yes, pepper, peanuts, palm oil, or any kind of oil as long as it is pure oil so that the cooking will be well done.

The same informant gives further exaplanations below about the causes of diarrhea by food as well as the distinction between bad and good food.

George: Et Qu'est-ce qui cause la diarrhee? (and what causes diarrhea ?)

Many people said that diarrhea is caused by bad feeding or bad food. When asked what bad feeding is, they mentioned the eating of vegetables that are not well cooked—i.e., vegetables (especially feuilles de manioc or cassava leaves) cooked only with salt and water—that such will cause diarrhea." Is this true? Many people say it is vegetables that cause diarrhea. My feeling is that it may be through the vegetables as it could be through some other food. Is it the vegetable itself or food that causes diarrhea or could it be coming from the contamination that the food item may be carrying? Observation indicates that food contamination in the community could come from various sources: during harvest, storage, preparation and eating. Each of these needs to be thoroughly observed to find out how the contamination comes about. For example during storage it may be contaminated by roaming animals, like goats and pigs or fowls which are commonly reared in the community. In households, eating is collective whereby children or children and adults eat together from the same plate. So if one person is contaminated, the rest risk being affected too.

These excerpts help explain beliefs in numerous food taboos in the Bakoum area. The food taboos affect women and children directly.

Pharmaceuticals

Pharmaceuticals are commonly used in the village to treat many illnesses. Kouah Gregoire explains the use of pharmaceuticals in the following interview excerpt (Interviewed: Nov-19-97) :

> George : mhm, and to treat, what is done ?
>
> Kouah : O-o. Most often, at the village level, when one does not have the (financial) means, there are some medicines that we buy. They call them capsules, there are medicines with the Bami (or Bamilike), called capsules. Sometimes you take the red or the yellow and then the child swallows them. Sometimes it stops. But sometimes it does not stop. And especially also, if I see well, diarrhea is caused mostly by intestinal worms because when the child already has lot of worms, diarrhea follows. And there automatically, it is for the hospital. Because

> once the worms are treated, it (diarrhea) stops. There is also a problem of worms here. And if I see well, it is because of dirty water.

Hospital

Some cases of illnesses were taken to the hospital. According to most informants, many illnesses did not go to the hospital or health center because there was no money to pay for such treatment. Another reason for not taking certain illnesses to the hospital is that they cannot be treated in the hospital. The following excerpt is an example of a kind of diarrhea, *shambo*, that is believed to be treated only with traditional medicine. The same holds for illnesses believed to be caused by sorcery.

> K : (Keubou) Do you know of other illnesses common here in the village that are treated only with indigenous medicine and which are not treated at the hospital ?
>
> C : (Kongkoubou Christine) I do not know. There is Chambo (pronounced « shambo ») which is not treated at the hospital.
>
> K : Do you know others ?
>
> C : And witchcraft. It is not treated at the hospital.
>
> K : Can one have diarrhea through witchcraft ?
>
> C : Witchraft is common here.

Rationales

The aspect of time is important in trying to understand health behavior and how symptoms precede or lead to treatments. Researchers have reported that longer lasting illnesses are more likely to be treated outside the home than are illnesses of short duration. For example, in a study of anti-malaria behavior among the Gusii of Kenya, Nyamongo (1998 :254-255) showed that « the patient's tendency is to seek treatment outside the home when the illness takes long to heal. » Examining the treatment behavior of 29 people, Nyamongo found that the probability of using self-treatment as an initial treatment option is 0.83, while that of using other treatments (outside the home) is significantly lower. He found that, as initial treatment, the probability of seeking treatment outside the home totaled .18 (i.e., 0.09 for the government clinic 0.06 for the private clinic and 0.03 for herbal treatment). It may be noted that herbal treatment could be administered both by household members at home or sought from friends or specialists outside the home.

One interesting aspect of health-seeking behavior worth examining is to identify behavior-triggering symptoms and to find out which symptoms are associated with which behavior. This is possible if the data is recorded chronologically on a day-by-day basis, taking note of which symptoms were observed first, second, and third.

The process approach looks at the dynamics of the treatment process itself--when, where, what, and who influences the process. There obviously are many idiosyncracies in such data, but unless we faithfully collect it all, we are not going to know what is idiosyncratic and what is actually an ongoing pattern.

The determinant framework puts health care behaviors in a larger context and focuses our attention on important details. I have shown that a process approach is a complementary framework for understanding the mechanisms by which determinants affect individual actions.

While I cannot generalize, this research shows potential links between the characteristics of illness episodes, patients, caregivers, households, communities, and links between illness behavior and national and international forces affect illness behaviors as they change over space and time. The next step is to increase the sample size, collect more systematic data using illness graphs over different illnesses, communities, and cultures.

Problem

One of the problems faced was cross-checking what informants told us. Some times we got conflicting accounts from both parents. It also happened that some parents, especially men, were more concerned with telling us or showing us how much they knew and how well they use modern medicine than with giving us the real account of what they did about the illness. In some cases the information from informants conflicted with our own observations. Some times, when both informants were interviewed separately, we got differing accounts of what was done to solve the same problem. (We had the impression, however, that women remember information about children's illnesses better than do men.) In one situation, we monitored a case of diarrhea where we interviewed both the mother and the father of the sick child. The father said that rice had been withdrawn from the child's diet because of diarrhea. The next day, when we came to check on the child's diarrhea, we found the child eating rice. Cases like this one, where informants may say one thing and do another, are common in ethnographic accounts.

Conclusions and Recommendations

This study examined the ways parents and child caretakers respond to children's diarrhea. It also researched their beliefs about the causes and symptoms of diarrhea and how they treat children who have diarrhea. The structural and infrastructural conditions under which diarrhea occurs and health behavior takes place were observed. The study showed how systematic methods like free listing and the methods to analyze them like correspondent analysis can be used to collect and analyze data on cultural patterns of how people handle diarrhea. The data were obtained from two major sources--a review of the literature on diarrhea and from fieldwork. In this section, I discuss my major findings, and offer some recommendations.

My findings on diarrhea are broken into two groups--those from the literature review and those from my research on the field.

Findings from the Literature Review

A review of models used to study health behavior shows that the approaches can be summarized to two--determinants and process approaches. I examined the two approaches, highlighting their strengths and weaknesses, and conclude that they are more beneficial when used to complement each other.

From the literature review, I noted that some health practices are common and others are not. Some are regional, while some are particular to some cultures.

1. Cultures classify diarrhea into categories and use these categories in determining treatment approaches.

2. Cultures have beliefs on what causes diarrhea including socio-cultural and environmental causes.

3. Diarrhea related to developmental milestones recognized in many cultures, is usually not treated.

4. Women play an important role in the treatment of diarrhea; but they are also held responsible for causing it through sour breast milk.

5. Among the regional practices, we find that some concepts are common but their significance and interpretation differ by region. For example the concept of balance

is common among bantu speakers and societies with humoral medical systems. However, the interpretation and significance of the concept is different in both.

6. Some concepts like hot and cold to explain diarrhea and illnesses are found in many cultures but are also interpreted differently.

7. Universally, treatment is delayed at the onset of diarrhea.

Findings from the Fieldwork

In the Bakoum area I have findings from my observations and from the reports we were given by informants. Many of the findings from the Bakoum Area confirm those reported in the literature. For example (from my observation on the field), the findings confirm the fact that diarrhea is a disease arising from poverty and poor socioeconomic and environmental factors. In the Bakoum situation, a shortage of functional modern health facilities makes the situation worse.

1. Many mothers are not yet ready for motherhood, child nurturing and upbringing. Unmarried girls of school-going age are having babies. Unable to care for them, and attracted by urban centers, many of them leave the babies with their mothers and grandmothers and go off to town to find money; often through prostitution.

2. Concubinage is common. The men involved are often absent, gone to look for money in the towns or from agro-forestry industries.

3. Schooling levels are very low especially among women. Most people do not have more than three years of schooling.

4. Absence of potable water.

5. Children play in dirty environments, and eat together from same dish. Most latrines are open pits and some households do not have dug out pits This situation

provides good conditions for the fecal oral cycle to play out here fully. Domestic animals roam around the environment freely and sometimes into kitchens. All these factors contribute to diarrhea occurrence in the area. The practice of throwing dirt and household refuse near the household could encourage the spread of pathogens through roaming animals like pigs and goats. Children could also come into contact with pathogens as they play in the yard.

6. Water Supply: The importance of improved access to potable water has been highlighted in the literature and is found to be acute in the Bakoum area. Water is not only significant in transmitting pathogens but can be a determining force in eliminating them and in influencing hygiene behavior. There is evidence in the Bakoum area that people see a correlation between quality water and reduced incidence of diarrhea. This awareness could be a good foundation to build prevention approaches on.

Findings from Informant Reports

1. Women play a front line role in the fight against diarrhea at home but they are also considered a cause of diarrhea for their children. For example, sour breast milk is considered a cause of diarrhea.

2. The recognition, treatment, and attitude toward developmental diarrhea is similar to the one found in the literature.

3. From a comparative perspective, diarrhea is considered to be different from many illnesses like malaria, and scabies but similar to dysentery and worms.

4. First treatment of choice is traditional medicine, mainly because of financial difficulties and because the local health center does not have the medicines.

5. Simultaneous treatments: It was observed that people often used different treatments simultaneously.

6. Sequential treatment: People follow a treatment sequence from one treatment modality to another till they observe improvement or till they give up.

People report that low incomes are a big constraint in accessing modern treatment.

Recommendations

It is well known that infant mortality due to diarrhea is caused by dehydration and that this can be prevented through rehydration. Not surprisingly, diarrhea programs to date have aimed at promoting oral rehydration therapy to reduce morbidity and mortality in children with diarrhea. Though effective, this approach tends to neglect infrastructural and structural factors as contributing to the incidence of diarrhea in the developing countries. An effective approach to counter diarrhea should be comprehensive and multidisciplinary by addressing both the structural and infrastructural factors in the society. Diarrhea is not just a question of pathogens affecting children. It involves structural and infrastructural problems as well as cultural and economic problems. Eradication programs, therefore, must focus not only on treatment but also on prevention. Specifically for the Bakoum area, the following recommendations may be useful for improving the health situation in general and diarrhea in particular.

1. Equip, stock, and staff the existing health center and make it functional. The health centers in the village were not being fully utilized by the people during the study because medicines were not available. However, work on renovating the health center had begun before our departure.

2. Promote and encourage the formal education of boys and girls. Both boys and girls should be encouraged to enroll in school. It was observed that education standards were low and most people did not have more than three years of education. However, from the literature review, I found that all studies that have examined the education of mothers in relation to children's health point out that the more educated mothers are, the healthier and better nourished their children will be.

3. Improve the standard of living of the population through better or proper nutrition, education, and building of infrastructure. The land is fertile and can grow all kinds for food for a balanced diet.

4. Repair the broken water system. Water is a major problem in the villages. However, this would not have been the case had the water system been working. If it is not repaired, health workers will continue the fruitless effort of exhorting people (who have no potable water) to drink water during diarrhea.

Table 7.1 Symptoms of Diarrhea Extracted from Reports of Caretakers' Responses to Cases of Diarrhea

Symptom	Frequency
Watery Stools	9
Frequent Stools	6
Hot Body	5
Tiredness	5
Yellow Stools	2
Anemia	1
Vomiting	1
Dark stools	1
Green Stools	1
Foamy Stools	1
Loss of Appetite	1
Red Stools	1
White Stools	1
Rate	1
Sleeplessness	1
Weight Loss	1
Bloody Stools	1

Table 7.2 Treatment and Nontreatment Behavior

Case of diarrhea	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
1	N	N	T	T	T	T	T	
2	T	T	N	N	N	N		
3	T	T	N	N	N			
4	N	N	T	T	N	N		
5	T	N	T	T	T			
6	N	N	N	N	N	N		
7	N	N	N	N	N	N		
8	T	T	T	T	N			
9	T	N	N	N				
10	T	T	T	N	N	N	N	
11	T	T	N	T	N	T	T	N
12	N	N	N	N	N	N		
13	N	N	N	N	N	N		
14	N	N	N	N	N	N		
15	T	N	N					

NB: T=treatment here signifies that informant reported treating or administering treatment for the child's diarrhea on the corresponding day
N=Nothing, means that informant reported doing nothing for the child's diarrhea on the corresponding day.

APPENDIX
CASE STUDIES

Diarrhea Case Number One

Mapom Agele is 8 months old and has been diagnosed by her mother as having *koumleu (diarrhea) and Kikegi*. Her mother Djam Julienne, a 20-year-old single mother has had six years of schooling.

We followed this case of diarrhea for seven days. On the first two days, Julienne reported that the child's stools were watery and black and that the child was very hot. She said she did nothing for those first two days and her reason was that she had no time. She breast-fed the child and also fed her with vegetable and maize couscous. She planned to make medicine for the child the next day and to stop feeding the child with vegetables because vegetables give diarrhea.

On the third day, she reported that there were no more watery stools and that the color of the stools had turned to yellow. [notice that a lot of attention is focused on the nature of the stools--texture, color, frequency and constitution. Also notice that treatment is focused a lot in trying to stop the symptoms---stop liquid nature and frequency]. The child however, was still very hot. She had given the child a traditional remedy called *tike* to treat the diarrhea. She said that she had noticed a change because the child was no longer passing out watery stools as she was the day before. The child had been fed "bon gout," monkey and couscous and breast milk. She had stopped feeding the child with *legume sel piment (ie vegetables or leaves of cassava cooked only with salt and water as* *ingredients. This meal is said to cause diarrhea)* and *feuille de manioc.[It may be noted that vegetables or food in general that is cooked without ingredients is considered a very poor person's meal in Bakoum. Bon gout is the ideal meal. It is any consistent meal cooked with a good quantity and variety of ingredients like onions, oil, tomatoes and fish. Those who eat bon gout are known to be well nourished.]*

On the fourth day, the child's body was hot all night and the child had a cold. The child had been given half a pill of nivaquine and half a pill of paracetamol. Mentholantum ointment had also been rubbed in the child's nostrils. This was to treat the cough and the cold. "I decided myself to go there (possibly Petit pol health center) and he gave me this treatment which will last for three days. I go there often. I go there because medicines are available."

Julienne reported that after the pills, the child was no longer very hot. On that fourth day, she said she did not give anything for diarrhea because she was already improving—she had passed stool only one time and it was not watery. She was fed with breast milk. She planned to look for leaves, put them in water and wash the baby with them—*loshe bou.* She said that the cold was new.

Fifth Day: The child was still reported to have been very hot at night. She had passed out two stools at night and twice since morning. Julienne had given half a nivaquine pill again to treat *rate*. She said she had gone to the sisters (Catholic health center run by Rev. Sisters) at Doume because they treat but at Goumbegeron (where she leaves) there are no medicines. Her evaluation of the child's illness was that there was yet no improvement. The child had been fed with bread, cake and breast milk. She was planning to go back to the Sisters' at Doume during the week (Thursday)---in two days.

She had made the trip there on foot and said she was going to return there in two days because she was tired.

Day Six: Watery stool once at night. She gave half a nivaquine pill again to treat *la rate*. "I will no longer given anything to treat diarrhea because I no longer know what to give." She said that the child's body temperature was reducing. She also reported that the child refused to eat well prepared vegetables and couscous. She was fed with breast milk. No more forbidden food. She said she will no longer take her to the hospital.
On the sixth day, the informant was not found out home, but the child was reported to be a little better and that she was no longer very hot.

Diarrhea Case Number Two (Recent Case of Diarrhea)

Keman Sylvestre is a boy of 2 years diagnosed by his 23-year-old mother, Marie Claire Piaga, of having koumleu, regular or common diarrhea. Marie Claire is a subsistence farmer and has been to school for one year (CM1). We met Marie-Claire about two weeks after the child had had diarrhea. Marie Claire told us that during the first three days, she noticed that the child passed foamy watery stools, green like leaves. Through out the child's illness, she told us that she did nothing, which means that she did not give any medicines to the child. She explained that she did nothing on the first two days because "*if the child starts to have diarrhea, medicine is not given until after two days.* " At the end of each of the first two days, the child was reported to be tired. The child was eating manioc leaves on the first two days. Nothing or no food was forbidden from the child on the first two days.

Up to the third day, the same symptoms as on the first day were observed and the same pattern of treatment was observed—i.e., no treatment was applied.

On the third day, no treatment was given, and it was said because the mother who could have treated her in the village was not there and the child's father forbade the child from eating "feuilles de manioc (or *mbeti*) or cassava leaves." On the third day, the child was fed with groundnut sauce or soup with cassava and smoked fish. He was also given couscous and "glue." At the end of the third day, we were told that the child was less tired.

On the fourth day, no glaire or mouve was observed on the child's stool. The child was still considered to be having *Koumleu* and no treatment was given to the child, again because the mother or woman who could have treated the child (probably the indigenous medicine woman) was not there, (she might have gone to the farm; during pick farming seasons, people go off to the farms and do not return until after many weeks). Legumes or feuille de manioc continued to be withheld from the child till he got well. The child was fed with same food as on the third day and at the end of the fourth day, the child was found to be less tired.

On the fifth day, the child's stool was beginning to harden, it was still koumleu, no treatment was given, again because the woman who could have done so was not in town. The child was no longer tired and was fed everything except *mbeti* (feuille de manioc or sel piment).

On the sixth day, the child's stool was said to be had and child was declared well. He was no longer tired; was fed everything except *mbeti*.

Diarrhea Case Number Three (Current or Actual On-going Case of Diarrhea)

Awoung Tayong (29-year-old male) and his wife, Sali Therese (26), are residents of Goumbegeron. They have a 3-year-old girl whom they reported had *kimama* (a kind of diarrhea with blood). We followed up the child's diarrhea for five days.

On our first visit, they reported that the child's body was hot, and the child had neither eaten nor slept well. They had given him flagil (an over the counter drug) and some indigenous medicine to stop the diarrhea. They had also fed the child couscous and mango sauce. No foods were forbidden from the child.

Second Day: On the second day, they reported that the child was a little awake, they had given nothing because they were in the farm and that since the previous day, he had not passed out a lot of stool. The child had been fed roasted plantains glue sauce and karite oil. No food was withheld from the child. They also said that they will take the child again to Leonie. And that they will make medicine to the child on the day of our visit.

Third Day: No symptoms reported. Awouya and Therese gave Flagil again to the child, took the child to Mama Leonie and she gave something (a leaf called Bombiale) for them to block the child's anus from night till morning. They said they prefer to take the child to Leonie because of the means or because it is cheaper and because it is an illness which is normally treated with indigenous medicine. They said that the child's stool was no longer watery. Again, no food was forbidden from the child.

[It may be noted that there are some contradictions in the report of symptoms observed by the parents and the treatments given. Normally, we would not expect parents to seek external help if the illness is not aggravating. But from the report, they did seek

external help from Leonie though they did not observe any symptoms, and Mama Leonie recommended a medicament to block the child's anus for the whole night even though they reported that the stools were no longer watery]

Fourth Day: Parents reported that the child had stayed for a long time without passing out stool. They had given the same medicine as yesterday (or the day before). The child had been fed couscous and macabo (cocoyam) leaves. Mama Leonie (a grandmother with a lot of experience in the treatment of children's illnesses using traditional methods) had asked them to observe the evolution of the medicine before bringing back the child to her.

On the fifth day, they reported that the stools were good; that the child was threatened by cold. The no longer sleeps too much. His anus still comes out but returns almost immediately; before then, it used to last long outside. They expected the medicine to finish on Saturday; then they would wait and go there the week after.

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BIOGRAPHICAL SKETCH

George N. Mbeh was born in Djichami-Kom, Boyo division, Cameroon. He studied at the University of Yaounde before attending the University of Florida.

George Mbeh participated in research on language education in Cameroon which involved training and supervising teachers on how to teach local Cameroonian languages in primary schools. It was jointly sponsored by the University of Yaounde Cameroon, the Cameroon Ministry of Higher Education and Scientific Research, and the Societé éInternationale de Linguistique (SIL).

He has also researched on how survivors of disasters cope. In 1987, he was part of the multidisciplinary team of researchers that studied the Lake Nyos disaster which occurred in Cameroon in 1986, killing about 1,800 people and rendering many others homeless.

Mbeh has consulted with UNFPA in Cameroon where he participated in training researchers in methods of gathering and analyzing ethnographic data. He later supervised the team in the collection and analysis of data on fertility in the eastern province of Cameroon. He also participated in a World Bank sponsored study on Cameroon population and its quality of life. He has consulted with "projet SESA," a project on mother and child health (MCH) in the South and Adamaoua provinces of Cameroon, co-sponsored by USAID and the Cameroon government.

His current research interests include decision making and health-seeking behavior, languages without writing traditions, cultural patterns, and sustainable development.

He has co-published readers in the Kom language, research papers on the problem of tone marking, and a paper on the ethnographic decision modeling of caretakers' responses to childhood diarrhea in Cameroon.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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